

ESTABLISHED 1819.

THE

AMERICAN FARMER

DEVOTED TO

Agriculture, Horticulture and
Rural Life.

Vol. X. New Series.

DECEMBER, 1881.

No. 12.

Subscription, \$1.50 a year. To Clubs of five or over, \$1.

SAMUEL SANDS & SON,

No. 128 West Baltimore Street,

(Opp. American and Sun Buildings.)

BALTIMORE, MD.

[Entered at Post-Office, Baltimore, as Second-Class Matter.]

"High Grade" AMMONIATED Super-Phosphate

A Complete Fertilizer for Wheat.

DISSOLVED S. C. PHOSPHATE.

12 to 15 per cent. available Phosphoric Acid,

DISSOLVED ANIMAL BONE.

Agricultural Chemicals.

We have in stock a FULL LINE of the above goods.

➔ Send for our new book:

"A FEW THINGS WORTH KNOWING ABOUT FERTILIZERS."

WM. DAVISON & CO.

104 W. LOMBARD STREET, BALTIMORE,

GEORGE PAGE & CO.



No. 5 NORTH SCHROEDER STREET, BALTIMORE, MD.

Manufacturers of PATENT PORTABLE STEAM ENGINES,

The Boilers the Safest and Most Economical of Fuel Made.

Stationary Steam Engines and Boilers, Patent Portable Circular Saw Mills, Sash, Muley and Gang Saw Mills, Flour Mill Machinery, Grist Mills, Shafting, Pulleys, &c., &c. **AGRICULTURAL ENGINES A SPECIALTY.** Lath, Shingle and Barrel Machinery, Lefel Turbine Water Wheels, Wood Working Machinery, all kinds; Tanite Emery Wheels and Grinders, Circular Saws, Saw Gummers and Tools and Mill supplies Generally. Agents for **NICOLS, SHEPARD & CO'S VIBRATOR THRESHING MACHINES.** **COMPLETE THRESHING OUTFITS FURNISHED.** ➔ Send for Descriptive Catalogue and Reduced Price List.

The American Farmer.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." *Virg.*

Published by SAMUEL SANDS & SON, Baltimore, Md.

VOL. X.—No. 12.]

DECEMBER, 1881.

[NEW SERIES.]

The Distribution of Plant-Life, and the Agencies Contributing to It.

An address delivered before the Maryland Horticultural Society at its April meeting, 1881, by Dr. BOLING W. HARTON (and published by request of the Society in the *American Farmer*.)

About noon, on the 3d day of August several years since, I started in company with several companions to make the ascent of Mont Buet, which stands just across the valley of Chamonix from its giant rival, the great Mount Blanc, and to which it is the next in height among the peaks in this region of the Alps, its highest point being about 11,000 feet above the ocean's level. The summit was reached on the following day, and that night found our very tired party once again in a quiet inn down in the lowlands. Now that it is all over, that we have been up and are safely down again, I can recall with greater pleasure and a more lively interest the incidents connected with that ascent than I can claim to have experienced at the time itself. The day was hot and sultry when we started out, and after passing over the first green slopes near the base of the mountain the way became one continuous unrelaxing rise, only broken now and then by truly savage gorges, which were wearing deeper and more jagged by the frothing streams which harried through them. Rocks, large and small, loose and firm, began to rise in our pathway, and soon we were not walking but climbing in order to save time and distance and long detours. At this height the atmosphere began to grow sensibly thinner, as if it would withdraw its support at the time when its need was becoming more and more urgent. The sun was just going down, but at this season we might ordinarily have depended upon a long twilight by which to see our way to a certain large rock, upon which we were bent and under which we were expecting to find shelter for the night. Almost suddenly the twilight failed us, and upon looking up we perceived a black cloud which was skimming the mountain range beyond, and under the lee of its summit was rolling in great masses straight down upon us. Night came and increased the darkness, if black can add to blackness, and a

storm was inevitable. The rumble of the thunder drowned our voices, which was now the only means left us of communicating with one another and with our guide. An angry Jupiter seemed to bellow in our very ears and to crack his glaring whip of lightning thongs close in our faces. The rain sheeted down from the low hanging clouds, and the running water literally rattled about our feet with its charge of pebbles and stones. The quick lurid glimpses by the lightning flashes added nothing to our comfort, nor to our help, but only revealed to each of us that he was alone—no two of us were left together. Betrayed by the confusion of sounds we had wandered apart in the pitchy darkness, and all that could be seen in the short intervals of light were dark, wet lumps perched here and there upon some rock, or a groping figure stumbling aimlessly about hoping for some guiding sound. I need not add that the situation was decidedly unpleasant. Soon, however, the thundering nearly ceased, although the rain continued to pour down. The welcome call of the guide could again be heard, and was responded to from various directions. We assembled once more and stumbled on towards our much longed-for shelter. At last we came upon a great rock with overhanging top and a wide ledge half way up its side over which was a rude shed. Almost drowning in the pouring rain, our utmost desire was to find some spot where we might breath freely without taking mouthfuls of water. An opening as if of a cave door was found on the side at the base of the big rock, and into this we cautiously ventured not knowing where it might lead us. A little desperate, however, from recent experience, and being pushed on by those behind, who were equally anxious with myself to find shelter from the rain, I was proceeding with arms extended back into this dark hole, when my hand came suddenly in contact with what was evidently a large hairy animal. Retreat was cut off by the pressure of those behind me, and further advance in the uncertainty of surroundings was unpleasant, so we called a halt and awaited a possible attack from some creature whose domicile we were invading. Nothing came, however, but the sound of a weakly chewing of the cud by a poor, lean and docile cow who, like

ourselves, had discovered this place of refuge from the stormy night. We lodged here in more or less comfort as may be imagined, and the night seemed long. The next morning dawned rosy and cold—as a sample of August weather, very cold indeed. We found ourselves on the edge of the snow-line, and all above and beyond was ice and snow except the faces of precipitous rocks and the nooks which they sheltered. From this point the ascent grew more and more difficult the footing was slippery and treacherous, and the atmosphere had now thinned out to a medium requiring several acts of respiration to supply the place of one in the lowlands. At about ten o'clock we reached the highest point only to find the entire country beyond shrouded in mist and clouds, and offering a very poor reward as to view, for the labor and discomforts through which we had passed. We had proposed to breakfast on the very tip-top of the mountain, but the very cold winds drove us back to a more genial climate to take this repast, of which by this time we began to stand in much need. The descent was rapid and relatively easy. Here and there were long unbroken fields of crusted snow. Upon these we simply sat down and let slide. This was coasting extraordinary, but was very restful and agreeable after our toilsome climb; but having not even so much as a brick or a slab of rock to sit upon, it may be imagined that this mode of locomotion was rather damaging to clothing, and indeed some of the party found themselves in an embarrassing plight when we reached the settlements below. Their extreme deference to strangers, upon whom they were most careful not to turn their backs, must have greatly commended "those American tourists."

Such incidents as those just narrated must appear, at first thought, as being very far removed from things botanical, but I hope to show in the course of this paper that many of the facts just mentioned may have a most decided bearing upon the distribution of plant-life in space and time, which is the subject we are about to consider. The description of such a mountain ascent was a method which seemed good of introducing to those who may not have had the opportunity of seeing for themselves the physical features of the Alpine districts. Of these you will recall the mention of the green slopes at the foot of the mountain, then the rocks, the gorges, the torrential rains, the winds, the cold, and the eternal snows, all of which will be found important factors in determining the habitat of plants and their special modifications.

Even the most unobservant, the most unscientific adventurer into those regions, must notice a great change in climate and a corresponding change in vegetation as he proceeds from the lowlands to the high mountain peaks. One form is seen to succeed another, almost like the growth of different crops in adjoining fields. No sharp barrier, as by a fence, is seen to separate them, for one form blends with another, and some species extend over several territories, but it was apparent that at various degrees of altitude certain typical forms prevailed, to which the others were subordinate, so that we might speak of the level of the beech, the level of the pine, etc., etc. I regret now that I did not note with accuracy

the order of these predominating types, and the levels at which they occurred, but trusting to a rather treacherous memory, I give what I think will be found to be approximately accurate. In the valleys there was the ordinary flora of the Swiss lowlands, which is fairly rich and varied; then, taking into account only the larger growths, we find the different altitudes represented about as follows: Some willows, of course, in the meadows, although some also higher up, followed by the chestnuts, the oaks, beech, birch, pines, and rhododendrons (heaths are, however, poorly represented in that country). Then the trees and shrubs cease, and are succeeded by the beautiful gentians, the Alpine arbutus, the classic edelweiss, and finally tufts of grasses, mosses, and lichens.

After writing what I have just read, I had the good fortune to light upon an accurate description of the order of plant-life as it appears upon the Alps, by a writer whose name is not given, but whose account tallies very satisfactorily with what I was able to recall, and which I take the liberty of quoting. "We begin to ascend the Alps," he says, "in the midst of warm vineyards, and pass through a succession of oaks, sweet chestnuts, and beeches, till we gain the elevation of the more hardy pines and stunted birches, and tread on pastures fringed by borders of perpetual snow. At a height of 1,950 feet the vine disappears, and at 1,000 feet higher the sweet chestnut ceases to grow; 1,000 feet farther, and the oak is unable to maintain itself; the birch ceases at 4,680 feet, and the spruce at 5,950 feet, beyond which no tree appears. The *Rhododendron ferrugineum* then covers immense tracts to the height of 7,480 feet, even to 9,000 feet in the Pyrenees and Mont Blanc, and *Salix herbacea* 300 feet higher, accompanied by a few saxifrages, gentians, and grasses, while lichens and mosses struggle up to the imperishable barrier of snow. The very last effort of nature to maintain vegetation is in the little unicellular alga, called red snow."

Here and there we come upon brilliant patches of brightly colored flowers, either in the midst of the snow, or near the snow-line, and we are forced to pause and contemplate with surprise and admiration the display of such beauty in such uncongenial climes, such waste of sweetness upon desert air. I remember gathering great bunches of the rhododendron, and Mrs. Bolles describes the little snow gentian as growing in such luxuriance as to impart a deep blue to the dizzy ledges on the flanks of the Jungfrau and Monte Rosa, where the guides frequently resort to the artifice of calling the travelers' attention to it, in order to divert the mind from the dangers of the overhanging precipices. Our guide was neither so aesthetic nor so considerate as to treat us in any such way; his chief aim seeming to be to perform the task of conducting us up and down again, to pocket his wage and be off for another job.

The appearance of these bright patches in these high regions was suggestive of some interesting deductions. Botanists are now of the opinion, particularly since the experiments of Sir John Lubbock have been made known, that these colors of flowers are for the purpose of attracting insects, which visit them for the honey,

and in compensation carry the pollen from plant to plant, thus securing cross-fertilization, which is clearly an advantage to them. Now, if the tiny blue gentian was found only singly here and there, or even a few individuals together, they might easily escape the sight of insects, and so fail to secure the benefits of their visits, but grouped as they are, in carpets of bright patches, they cannot fail to be detected and visited. The neighborhood is too cold for bees, but numerous butterflies are attracted to them, and it is noticeable that the monopetalous corollas and other peculiarities are best adapted to suit the proboscides of these insects. As other examples of most conspicuous grouping of the flowers to arrest the attention of passing insects, we may mention the dense heads which characterize the large family of composite, and the tufts of the pretty little bluet, or *Houstonia*, the single separate flowers of which would almost surely be overlooked. Furthermore, we have to notice concerning the high Alpine flora, that the annuals have largely been supplanted by the more hardy perennials, and that many forms, which in other localities are arborescent, or tree-like, are here reduced to low and almost trailing shrubs; there being one coniferous species which is said never to exceed five inches in height. A spruce, says Dr. Wood, found on Mount Washington, so dwarfed in its dimensions as to be almost beyond the point of easy recognition, having long rigid branches, so matted together and interwoven as to form in reality the natural *chevaux de frise*, which renders further progress almost impossible, except by walking over the surface or tops of the trees.

Looking away now from what has just been detaining us in the Alps, we find that, thanks to a sort of scientific verve which has been prevalent these fifteen, twenty, or twenty-five years past, and which luckily still prevails, we find that explorations have been made of at least limited areas, scattered over nearly the whole world, and many most interesting and valuable observations been made, touching the subject which we have in hand. To Mr. Darwin and to Sir Joseph Hooker we owe, perhaps, most of our knowledge in this direction, but to the lonely wanderings of Mr. Wallace throughout the Malay Archipelago science at large owes a great debt, as also to our own Prof. Gray, to H. Muller, and to a number of others who have contributed facts of the first importance. A compilation of all these facts would, of course, take me away beyond the proposed limits of this paper.

What I desire is to direct attention to some of the more interesting data which have been collected in regard to the dispersion of plant-life and to consider briefly the agencies which have been at work in times past and which are yet contributing to this same end.

The question of the origin of life need not detain us long. There is evidence of a good kind that time was when no life existed upon our globe. Just when and where and how it began must remain, at least for the present, purely matter of speculation. To the biologist of the present day it does not seem so long a step from formless, inorganic matter through crystalline forms to responsive, moving, living protoplasm. He does not know the manner in which its elements are

combined upon which he believes its special properties depend, but his biological bias, so to speak, will not admit of the idea of a special entity called life being bestowed upon it. Given the elements appropriately combined, and the properties of contractility, irritability and assimilation, properties called *vital* become necessary characters, just as much as the property to form crystals is inherent in crystalline bodies, and is dependent upon molecular construction and special affinities which we do not pretend to call vital. This I am aware is somewhat begging the question, but the subject is as yet so obscure that it is difficult to steer out of a circle in our efforts to reason upon it. Neither time, therefore, nor inclination will allow us to dwell upon the indications of early life upon our globe, however full of interest they may be viewed from another standpoint. Yet it is quite impossible to undertake the examination of the dispersion of organic forms without being led back, imperceptibly it may be, into geological periods preceding our own. Indeed, it is only by the study of the changes which the earth has suffered in times past that we can at all hope to explain some of the apparently anomalous conditions which we find at present existing about us.

If we could look down upon a chart of our globe upon which typical floras of its various regions should be indicated by specified colors, there would be presented to view a most curious polychromatic effect. We should see that Great Britain and Northern Japan, though separated by a distance of 13,000 miles, would be marked out by much the same color; while on the other hand, in passing from Australia to New Zealand, a distance of but 1,300 miles, we should find the colors in strong contrast, indicating a decided difference in their respective floras. Coming nearer home, we might observe still more remarkable examples of contrast. Proceeding southward along our Atlantic coast, we should notice that the flora did not alter in essential characters even to the south end of Florida—the oaks, sumachs, magnolias and vines, all bespeaking a temperate region. But across the narrow strait of fifty miles the Bahama Islands wear a decidedly tropical aspect, and present a flora very similar to that of Cuba. The great island of Madagascar, covered with its forests of trees and shrubs and uniquely magnificent flowers, would be colored more nearly like distant Asia than like Africa, from which it is separated by a strait of 250 miles in width. In the Malay Archipelago there are two islands, name Bali and Lombok, but 15 miles apart, and yet their floras are said to be as distinct as if a wide ocean rolled between them. So again we should find similarly colored patches in the middle of Europe, in the tropical region of South America, upon our White Mountains, and other points in the western part of the United States, and upon Lapland, Spitzbergen, and a large portion of the arctic zone. And, to descend from large to small things, we may be reminded that even in our rambles round about Baltimore we have observed localities possessing certain floral characteristics. We know of one ridge, not a dozen miles from Baltimore, upon which one species of the beautiful Lupine (*perennis*) is a conspicuous

feature by reason of its abundance, and we have found it nowhere else within the same radius of the city. In another direction one of the fever-worts (*Triosteum perfoliatum*) is sure to be found in considerable numbers in a certain rocky woods on the W. M. R. R., and only there have I noticed it. Certain areas upon our chart would be marked by distinctive colors from all others. There will be several islands to be mentioned again further on.

These examples will suffice to illustrate the oddities and complexities connected with the subject. The facts briefly reviewed are as follows: That very large portions of the earth's surface are covered by vegetation; that specific forms are typical over certain areas; that those areas marked by these typical floras are sometimes very widely separated, and that conversely geographical areas quite near together possess floras of the most marked dissimilarity; that arctic, temperate and tropical floras have their representatives in the most unsuspected localities, *i. e.*, that arctic representative species are found in tropical geographical zones, and if we consult the geological record, tropical species may be found to have frequented the present glacial regions of the far North.

Now in seeking an explanation of this heterogeneous array of facts, we find that present conditions upon the earth are altogether insufficient. If we conclude that climate alone will suffice, we are met with such inconsistencies as the islands of Bali and Lombok afford, where certainly the separation by fifteen miles cannot make an appreciable difference in climate, and yet, as we have seen, the floras are entirely distinct. The same difficulty would arise in regard to soil or to any other existing circumstance. Neither wide separation nor proximity of position affords the clue to such anomalies, and we are forced inevitably, if we would understand them, to look into the past history of the earth and to inquire if other conditions may not have prevailed, which will lend us the necessary aid out of the difficulty. If we knew nothing of geology, nothing of physical geography, and nothing of the processes and laws which govern the evolution of living beings, we could but guess at these interesting riddles; but even the partial knowledge which we possess in these departments of science affords us more than a glimpse of the causes which have operated in the past, and holds out the hope of a satisfactory solution of whatever may be as yet unexplained. These various influencing agencies we may group under two heads, which may be distinguished as physical causes and as biological causes. Under the latter head we include the laws of evolution and extinction, which govern the tendency of organisms to occupy wider and wider areas as well as the special developments which they require for the accomplishment of migration and dispersion. By physical causes we refer particularly to the physiographical changes which the earth has undergone; to submergencies and emergencies, to invasions of ice from the poles and its subsequent recessions, and to the consequent shifting of climature, as when Greenland was sub-tropical and Ohio an arctic region.

Although, as we have already seen, climate

may not be an all-sufficient cause in accounting for the general distribution of plant-life, and the curious assemblages of special forms in certain areas, yet I think it will be found the mediate cause to which by far the greater number of the phenomena are to be attributed, and it concerns us to know what has produced the change in the climate itself. Upon any large surface of land, upon any continent, or two continents, provided they be continuous and not broken by deserts or extremely high mountain ranges, the zones of vegetation which succeed one another in proceeding from equator to poles are plainly preceptible. We have thus the division into equatorial, tropical, sub-tropical, warm temperate, cold temperate, sub-arctic, arctic and polar zones—divisions based upon distinctions in vegetation, themselves clearly dependent upon degrees of heat and cold, of moisture, and degrees of windiness or calmness, which, collectively, constitute climate; and it is a safe conclusion that this dependence of climate and organic life has existed in all time. So that if we find the remains of plants, let us say in Greenland, identical with or closely allied to such as we may see flourishing in Central America at the present time, we cannot resist the conclusion, based upon the fitness of things in the universe, that the climate of Greenland has been at some time the same as that of Central America. As to the causes of the repeated changes in climate, there may be some question. Some one has likened the earth to two great mounds, having their bases together at the equator, and their summits covered with caps of ice, which have descended and retired again at certain periods, producing, of course, very sensible changes in climate.

Confining ourselves to our own country, the testimony of the rocks is to the effect that these invasions of ice from the polar regions have occurred, and extended as far south as perhaps the latitude of Baltimore; that further, these elevations and depressions have been attended by more or less complete continental submergence, changes of coast line, and elevation of mountain chains. Now, it is right well ascertained that coincident with these oscillations of level, great cold accompanied the elevation of the continent, and a temperate climate its subsequent submergence. This is one way of accounting for the changes of climate, which, however, does not seem quite satisfactory. The theory of Dr. Croll is that which is now generally accepted, which states that the glacial periods have been occasioned by changes in the eccentricity of the earth's orbit, causing, of course, different relations between earth and sun. However accounted for, the facts remain the same, and it is estimated that in the eocene period, the climate of Fort Union was about similar to that of Florida or Southern Louisiana at the present time. During the next, the miocene period, Europe was covered with evergreens, which extended as far northward as Lapland, Iceland, or Spitzbergen, whilst in America the sequoias, nearly identical with the big tree of California, together with magnolias and the swamp cypress of the Southern States, all existed in Greenland, and most of them in Northern Europe and Iceland. Thus, finding the

evergreens of that period now in California and in the Southern States we might, somewhat after the example of Linnaeus and his floral clock, construct a miocene thermometer. The mean temperature of those regions in which the cypress now thrives is a good index to the temperature of Greenland at the period when it flourished there. It is certain that the edge even of the polar ice did not reach that far South then, and there are no remains of arctic plants to be found, but at the end of the next, or pleiocene period, the fossil vegetation exhibits a climate not very different to that of the present day. The cold had increased and the ice-cap was descending into more Southern latitudes, and then began one of the great ice ages to which we have already alluded. These ice movements and changes of climate were slow—slow in the geological sense—and their progress is to be estimated in thousands of years perhaps. If there had been rapid extension of the ice fields, and sudden changes of climate, we may be assured that inevitable destruction of life would have resulted; whereas we find that the effect was to push before the advancing cold the various forms of life into habitable climates, very much as the Boers have been pushed back and back by the aggressive Englishmen. A wholesale migration from North to South occurred; the temperate plants of miocene Greenland were pushed to the shores of the Gulf of Mexico, and arctic plants were driven to the middle United States and middle Europe. whilst many others no doubt were forced to the wall and suffered complete extinction. A word of explanation of the term migration may here be necessary. It must not be supposed that like the Boers again, for example, who upon the arrival of the English among them, imposing various restrictions and interfering with their peculiar mode of life, strike their tents and move off altogether to other lands, which offer more favorable conditions; or like the Irish and Germans who, crowded out of their native countries, set sail for the United States in hopes of finding more room and less competition in the struggle for existence. Similar as the two sets of cases may be, there are details in which they differ. In the case of the migrating plants by the ordinary means of dispersion which we will presently consider, the seeds are scattered in every direction, northward, southward, eastward, and westward. Those going north will be least favorably situated to germinate, attain maturity and reproduce their kind, and therefore will be first extinguished by the approaching cold. Those going southward will, on the contrary, be placed at the greatest possible advantage for survival, and, the same processes repeated, generation after generation, will inevitably determine the progress in a southerly direction. But, as we are well aware, the glacial conditions did not last. There came again changes of level or changes in the earth's movements, which brought back a temperate climate and consequent retreat northward of the great ice-cap; and as the ice receded plants followed it northward to their appropriate places. The arctic plants, however, in their movements to keep themselves in accord with the conditions for which they were especially adapted, discovered another alternative. Instead of going back northward they could ascend high and higher eleva-

tions of the mountain, and equally find a suitable habitat. This they seem to have done in many instances, and as the general ice sheet retreated to the north they were left stranded, and more or less completely isolated upon the mountain tops.

And so we are furnished with an explanation of the interesting fact that the Alpine plants of Europe are so nearly identical with what is consequently called the Alpine flora in America, and both are so similar to the present arctic species. And furthermore, it gives us an understanding of the levels of vegetation, to which we referred in speaking of the Alpine ascent, and which find their congeners in geographical latitudes. We may pass, even in the region of the equator, from tropical valleys to the heights of perpetual snow, through every condition of climate. In ascending the Swiss Alps, the elevation of three thousand to six thousand feet offers a climate corresponding to an average summer temperature of about sixty to seventy degrees of latitude, and therefore this altitude would find its geographical equivalent somewhere considerably north of Baltimore.

If the explanation we have just given be the true one of the isolated similarly-colored patches on our chart, it requires that there should have been a wide distribution of arctic species over much of Europe and America, as well as upon outlying islands to both of these continents. It suggests that there must have existed certain land connections which allowed of those migrations which were being enforced by the changes of climate. Of course there are other evidences of a physiographical kind which sustain this theory of land connections, and most plausible proofs may be given that, for instance, North and South America were united by a broad land area now mostly covered by the Caribbean Sea, and that North America and Asia were joined by a strip of land extending between the Aleutian Isles and Behring Strait, and that in many other directions what are now the beds of shallow ocean sounds were once, or perhaps many times, alternately dry land and under water. These land connections were naturally the favored routes of the emigrating plants, and it is to be expected that those regions, once so united, should retain some common features in their floras even after a long subsequent separation, just as Americans are now essentially Americans, though retaining many ancestral characteristics, whether English or Dutch, and their identity becoming more and more pronounced with the progress of adaptation to conditions existing on this continent.

Now, the areas of dry land existing over the globe may be called continents and continental islands. It is well known that the existing shore-line is not the true border of the continental plateaus; that we may proceed outward off our New Jersey coast, for example, a distance of sixty or seventy miles by a very gradual descent, the slope of the bottom being only about one foot in seven hundred, when suddenly we come upon a very abrupt descent, the true continental border, which approaches more and more nearly the shore-line as we go southward. So the British Islands are essentially a part of the continent of Europe, the true border being far outside of Ireland and extending south into

the Bay of Biscay. And New Guinea in the same way is shown to be a part of the continent of Australia. There are other islands, however, which have no such sub-oceanic connections, but whose borders are abrupt and deep, insisting that they are quite independent continents, however small, and these are called the continental islands. Now, this sharp separation, this absence of land connections with other regions, which we have seen is the favorite route of the emigrants, affords a clue to the uniqueness of certain island floras which for a long time have been matters of wonder. Guarded by a perpetual barrier of water from the invasion of foreign species, the struggles for supremacy and the consequent survivals and adaptations have been of a civil kind only, and during the long ages of isolation the surviving forms have become more and more peculiar, more and more characteristic of their native continents. The islands of Madagascar, of New Zealand, of Bali and Lombok and the Alibes are such independent island continents to which we have already referred.

After we have attributed to these climatic and physiological influences all that it is safe to do, when we have agreed that they suffice for the determination of vegetative zones of latitude and altitude, and to account for anomalous island floras, the subject yet presents facts for which we must seek explanations in other quarters. We may easily find, for instance, regions in the New World and in the Old presenting almost identical conditions of climate, soil and general environment, and yet these two regions will possess next to nothing in common as to their floras. It has been absurdly stated as cutting the knot, that plants from one region refuse to grow in another. To disprove such an assertion there is no lack of evidence. Cactus plants grow just as well when transferred to Southern Europe as they do in Mexico. Why, then, were they not always as abundant in one place as in the other? Cinchona trees which have been transplanted to the slopes of the Himalayas are just as flourishing as on their native flanks of the Andes. They have taken so well in their new homes that a material decline in the price of quinine has been the result. The potato, which is also indigenous to those high regions of the Andes, seems to have no limit to its adaptability to other soils and climates. Why, again, were these occupying such narrow boundaries?

Indeed, it seems the greatest of errors, as insisted upon by Taylor, to conclude that plants are always found in the very best situations which could be assigned to them. It is no doubt true that in the struggle for better life in which they are always engaged they have overcome difficulties, and in many cases secured a comfortable degree of adaptation to existing surroundings, but often the struggle is so severe as to tell upon the different competitors, and when the nature of the condition is altered by removal to another habitat, most plants will exhibit an improvement by attaining to a larger size, by producing brighter flowers, or by maturing a greater number of seed. The anacharis, for example, the common ditch moss of Canada, grows much more luxuriantly in English canals than in its native ditches, and the water-cresses which

have been transported to New Zealand reach a size which is altogether unknown in Europe.

The fauna of a country, by which, of course, we mean the animal life, is an agency in affecting the distribution of plants of the most decided influence, as we shall see by reference to the following well-known facts. Thus it is found impossible to successfully transplant certain trees from this latitude into Central America, because of the ravages of certain leaf-eating insects which prey upon them and soon destroy them, the native trees being protected by thorns or spines, or by various other devices. It is well-known that herbivorous animals show a preference in their selection of food, and if they find their way into new regions, they will attack certain species, and, of course, give the advantage to their competitors. Any species or number of species which may be holding their own in the battle of life against the rest of vegetation must of course surrender, and probably be quite exterminated when their enemies are re-enforced by the animal kingdom. Of such contests and their results, we have an example in the island of St. Helena, of which Wallace says: "When first discovered, 378 years ago, it was densely covered with a luxuriant forest vegetation, the trees overhanging the seaward precipices, and covering every part of the surface with an evergreen mantle. This indigenous vegetation has been almost wholly destroyed; and though an immense number of foreign plants have been introduced, and have more or less completely established themselves, yet the general aspect of the island is now so barren and forbidding that some persons find it difficult to believe that it was once all green and fertile. The cause of the change is, however, very easily explained. The rich soil formed by decomposed volcanic rock and vegetable deposits could only be retained on the steep slopes so long as it was protected by the vegetation to which it in great part owed its origin. When this was destroyed, the heavy tropical rains soon washed away the soil and left a vast expanse of bare rock or sterile clay. This irreparable destruction was caused in the first place by goats, which were introduced by the Portuguese in 1513, and increased so rapidly that in 1588 they existed in thousands. These animals are the greatest of all foes to trees, because they eat off the young seedlings, and thus prevent the natural restoration of the forest." Mr. Marsh likewise, in noticing the destructive effects of browsing quadrupeds, remarks: "I am convinced that forests would soon cover many parts of the Arabian and African deserts if man and domestic animals, especially the goat and the camel, were banished from them. The hard palate and tongue, and strong teeth and jaws of the latter quadruped, enable him to break off and masticate tough and thorny branches as large as the finger. He is particularly fond of the smaller twigs, leaves and seed-pods of the *sor* and other acacias, which, like the American robinia, thrive well on dry and sandy soils; and he spares no tree the branches of which are within his reach, except, if I remember right, the tamarisk that produces manna. Young trees sprout plentifully around the springs and along the water-courses of the desert, and these are just the halting stations of the caravans and their routes of travel. In the shade of these trees annual grasses and peren-

nial shrubs shoot up, but are mown down by the hungry cattle of the Bedouins as fast as they grow. A few years' undisturbed vegetation would suffice to cover such points with groves, and these would gradually extend themselves over soils where now scarcely any green thing but the bitter colocynth and the poisonous fox-glove is ever seen."

So, again, many plants produce flowers so modified in form, colors, etc., as to be entirely dependent upon insects for transmission of their pollen and for fertilization, dependent in some instances upon a certain special insect whose geographical range may be quite limited, and which would therefore, of course, control the distribution of these plants. The yucca and some species of orchids are of this number. The yucca has been introduced into England and into this country, in both of which localities it thrives and blossoms well, but unless a little moth, the *pronuba yuccasella*, be brought with it, and finds our country quite to its liking, the yucca cannot be fertilized and bear seed, and so must perish with the first generation. It may be mentioned that in this case the moth is equally dependent for the fulfilment of its reproductive functions upon the plant, so that ill-suited condition to either one or the other would most probably bring about the extinction of both.

Wading birds are active disseminators of seed, which they carry with mud upon their feet or in their feathers; whilst other species, especially humming-birds, render important services in the transference of pollen from plant to plant, and so insuring cross-fertilization. In the Sandwich Islands there are many showy plants whose flowers are adapted to profit by the visits of honey-loving humming-birds, upon whose backs and heads the pollen is dusted in such a manner as to be brought in contact with the stigma of the flower next visited. On the other hand there are countries in which a striking feature is the inconspicuousness of their flowers, they being small, greenish, and altogether insignificant as to looks. The flowering plants of the Galapagos Islands are of this nature, and the absence of humming-birds and insects at once suggest the reason of this peculiarity. It is quite certain, therefore, in view of this close interdependence, that change of climate, outbreak of epizootic disease, or any cause endangering the welfare of the fauna, would greatly affect, if not determine, the very existence of large numbers of plants. In this connection I recall another instance exhibiting the close relation of plant and insect life; all the details of which, however, I do not quite remember, nor do I know just where it was reported, so that I may possibly somewhat invert the facts, though in so doing the principle will not be affected. It was Mr. Darwin, I think, who came in possession of a flower from Madagascar which had a very long corolla tube, and upon the strength of its great length, and certain other details of structure, he ventured the assertion that there existed in that island a moth possessed of a proboscis of very unusual length. Such a moth was subsequently discovered which had an apparatus of the most approved construction for reaching the nectar and transporting the pollen of the plant in question.

Coming now to the more familiar means of dispersion, we easily recall a number of plants whose seeds are provided with little hooklets which stick to hair or wool of animals, as well as to man's clothing, and in this way secure an easy and cheap passage from place to place. The beggar-ticks, burdocks, clot-weed, tick trefoils and Spanish needles disseminate themselves in this way. The raw wool carried to England from other countries has been the means of introducing many new plants into the mother country. The martynia or unicorn plant used to be more commonly seen than now. It was formerly planted in gardens, and the curious pod, looking like a mouse with a long tail, was made into pickles. When these pods harden this sort of proboscis splits into two grappling-hooks, and was a terror, I remember, to bare-footed boys. This plant grows wild in the Southern and Western States, and when its pods are trodden upon by mules or other quadrupeds their points turn up and clasp the fetlock of the animal, who thus transports it often to great distances. Mr. Lugger tells me of a plant which he has observed—ambrosia, I think he said, (although ambrosia is one of the composite usually provided with a pappus), which manages to drop its seed during the night upon the dew-covered leaves or grass. The seeds are provided with a sticky mucilaginous coating which softens in the dew and causes them to adhere to whatever may touch them. Browsing animals thus get their legs and hips covered with them, which, subsequently drying in the midday sun, drop off as the animal wanders about from place to place. Running waters, as might be expected, are a means of scattering seeds over very wide areas, although I suspect that this is not so important an agent as might at first be supposed. There are comparatively few terrestrial plants whose seed will survive a prolonged residence in water, those which can do so being provided with some special protective covering, and in order to be freely transported must be lighter than water so as to float. The beautiful beans of the West Indies possess these essential characters, and they are picked up not only upon our shores, but upon the Cornish and Devonshire coasts of England, where the Gulf Stream has carried them. Their testa is so hard and resistant as to take a fine polish, and so they are set in metal and made into very handsome articles of jewelry; but it need not at all surprise us if at some time or other we should come upon a sprouting sleeve-button or breast-pin which had been lost in the woods. Cocoa-nuts also are well suited to this aquatic navigation; and cocoa-palms, which fringe the coral reefs in mid-ocean, have in all likelihood sprung from nuts which lodged there after voyages, perhaps, of many months. Our common sycamore balls get many a free ride in the running streams along which they are usually found to grow. These balls hang upon the trees during the winter, and by the arrival of spring their stalks are frazzled out by the winds and let the balls drop into the swollen streams of this period, which leave them stranded upon suitable soil.

Although seeds as a rule may not resist a long sojourn in water, there is another means by which the transmission of plants may be accom-

plished by this medium. Drift wood and floating islands may convey not only seeds but living plants, and even trees of considerable dimensions. Thus Wallace narrates that "a large boa-constrictor was once floated to the island of St. Vincent twisted around the trunk of a cedar tree, and was so little injured by its voyage that it captured some sheep before it was killed. The island is nearly 200 miles from Trinidad and the coast of South America, whence it almost certainly came."

Perhaps the most familiar method of dissemination is by the wind, and we find in plants a number of devices developed to profit by this agent. The winged seeds of the ash, elm, maple and some coniferous trees must be well known to all. As they fall from the trees they flutter like bits of paper, and in high winds they may be seen as high as the eye can reach sailing through the skies. The enormous family of plants known as composite, which includes the dandelion, the thistle, daisy and a host of others, probably owe their wide-spread distribution and numerical abundance to the feathery *pappus*, as the botanist terms it, popularly known as the clock, with which each seed is provided, and which acts as a parachute, allowing the seed to be transported hundreds of miles. Other plants, such as our wild yam, the balloon vine and the bladder nut, have large, light, inflated seed-pods, which are carried rattling along through the air or over the ground, often startling the timid by their peculiar noise, which is uncomfortably suggestive of the rattlesnake. We have also a grass—a poa, if I remember right—abundant in Druid Hill Park, whose culm breaks off in the autumn, and, by reason of its large panicle of loosely-arranged flowers, goes skipping before the wind, scattering its seed in every direction. We may often see heaps of this grass collected in nooks and corners in which the wind has temporarily left it, else dancing along over the ground during the November blows.

Still another mode of scattering seed possessed by a certain number of plants is by a sort of explosion of the ripened seed capsules, which takes place under special circumstances. We must, at some time or other, have amused ourselves by gently squeezing the ripened seed vessels of the balsams or ladies' slippers, or even by jarring the plant, which causes the valves of the ovary suddenly to crinkle and throw out the seed to some distance. The wind is usually the distributing agent, and this interesting little phenomenon may be witnessed very satisfactorily if we take the trouble to go to the woods, into any low, wet place, which in the neighborhood of Baltimore is almost sure to have been appropriated by that very common weed, the *Impatiens*, often called the balsam. When the capsules are ripe the slightest breeze which blows will cause them to be whipped against neighboring branches of the plant and to burst elastically, when we hear the little seed falling about us like drops of rain, and often receive them in our faces. An interesting example of this explosive quality of pods occurred to me last spring. I had gathered from a wistaria vine in the yard of a neighbor a number of pods which had been hanging there all winter. I

carried them to my room, and put them for safe-keeping on a shelf near the chimney-jamb. A few days later I was sitting reading, with my back to the window, when I was considerably startled by a sharp, cracking sort of a report, and the fall of many fragments about the room. It was just the season for sling-shots, and I concluded at once that, maliciously or by accident, a shot had come through my window, and at once turned to look in that direction. I was so impressed with the belief that it was the window which had been broken that I was very much mystified to find every pane of glass intact. Going then to look for the bits of something which I had certainly heard fall on the floor, I had no sooner turned my back than there occurred a second report, and again the room seemed full of flying missiles. This time, however, a piece of the pod fell near by, and I easily divined what had happened—my wistaria pod had exploded and scattered its beans on all sides.

Soon afterwards I saw mentioned among the proceedings of the New York Academy of Sciences the following account of a very similar experience, given by Dr. Newberry: A student had brought him from Cuba a specimen of the sand-box (*Hura crepitans*), a hard and woody fruit somewhat like a musk-melon, but very deeply ribbed and about three inches in diameter. He laid it on his table, and while reading one day was suddenly startled by an explosion as loud as the report of a rifle, fragments at the same time flying to every part of the room. These proved to be the seeds and bits of the sand-box, which had exploded.

The fruit of our wild geranium is also modified in an interesting manner, so as to be able to cast its seed to a distance from the parent plant. Here the torus, or receptacle, extends as a column up between the carpels, which latter are attached to it throughout. At the lower end are the little caps which hold the seed, their little openings looking toward the axis of the plant and surmounted by very elastic handles, each resembling a small dipper. The bowls of the dippers are close against the axis until the seeds are mature, when but a slight jar is sufficient to loose them, and the elastic handles suddenly flying backwards, send the seed flying out. Finding some of these seed vessels in right good condition last fall, I caused some of them to burst, and watching carefully where the seeds fell I measured the distance and found it twelve feet.

In the case of the wistaria two useful purposes would seem to be accomplished by the thick shell's pod. These are too thick and succulent to reach an explosive condition by the fall. They therefore remain suspended to the vine, sparing the enclosed seed many dangers during the winter, and when the warm days of spring shine upon them they dry out, and upon simple mechanical principles burst open as described. The back of a book held to the fire tends, by drying faster on that side, to bend away from the fire. If this tendency be resisted for a time and the book back be set free, it will spring open after the manner of our pods, though, of course, not with the same energy.

Our French Letter.

Messrs. Editors American Farmer :

The Phylloxera Congress at Bordeaux

is among the most prominent events to record. It did not lead to the revelation of anything new, so much so as to the official ratification of certain remedies. The origin of the disease was left in abeyance. The habits of the bug were relegated to the entomologists, and the latter declared that were the winter egg of the bug discovered and extirpated, the enemy would be conquered. Three remedies or preventives were discussed in committee, and by the most competent authorities. Take the plan of autumnal irrigations known as the Faucon process, so named after that distinguished proprietor of Graveson, near Marseilles. After the vintage he floods his vines for two months, and in spring doses the land with farmyard manure liberally. He thus saved his vines, while neighbors who declined to follow his example were ruined. In the Medoc districts this process is at present general. It implies, however, the command of a supply of water, either natural or artificial; hence the Government is doing all in its power to extend canals and arterial drains, etc. Insecticides, or chemical preparations, follow next in order. They are limited to two, sulpho-carbonate and sulphuret of carbon. Both have drawbacks, and have not given uniform results. The first is very expensive to prepare, and, in addition, necessitates a large supply of water to be distributed in the state of solution. Its use is hence limited to vines, either very prolific or possessing qualities of known reputation; in any case, of a nature calculated to pay the great outlay. The second, sulphuret of carbon, is cheap, but it requires much caution in being applied, or the remedy may be worse than the disease. Its effects vary with the depth and porosity of the soil to permit of the diffusion of the salt. The temperature also influences the action; excessive cold or excessive moisture can do more harm than good if these follow the use of the sulphuret. As France is estimated to have lost five milliards by the invasion of the phylloxera, and the ravages still continue, besides preventing the march of the enemy, it is a necessity to replant where the devastation has been effected. Here there is really less room for dispute; the grafting of French vines on American stocks is the sole plan known. The roots of the American vine resist the attacks of the bug; American vines flourish side by side where French vines perish; ten years of successful grafting confirm the remedy. The "riparia" is the variety of American vine which is in general favor. In Portugal, sulphuret of carbon and irrigation are the measures adopted; in Switzerland and Italy, extirpating the sick vines finds most advocates; in Sicily, the peasants rose against the decree for eradicating infected vines, and the inspector fortunately escaped from being blown up, with his house, by dynamite.

What is the Metayage System?

At the present moment, when the relations between landlord and tenant are the order of the day, the practice of the *metayage* system, which

is making such rapid strides in France, deserves to be discussed. In the fewest words, and freed from complications sometimes introduced, *metayage* farming means the landlord supplying the capital in live and dead stock, the *metayeur* and his family the labor, and the two contracting parties divide the produce. In the most successful working of this plan no money transactions take place, save what goes to the State to pay taxes. Many farmers who cannot pay a fixed rent adopt *metayage* and prosper; many laborers find in the system the road to comfort and independence. There is nothing new in the plan. Pliny the Younger adopted it on his estates, and with success, when his tenants were five years in arrears of rent and became reckless. As a general remark, landed proprietors in the east of France cultivate their own estates; in the north and northwest there are tenants; in the centre and south the *metayage* exists. The plan not only ameliorates the tenant but the soil, and secures a dividend certain for the owner. One-half of the population of France lives by agriculture, and one-third, of both sexes, by the actual tillage of the soil; one-fourth of the cultivated land is worked on the *metayage* principle, and every department of the country has farms so managed. In many cases the partners (for the contract is practically that) divide $7\frac{1}{2}$ to 20 per cent. net profits in a good year; the mean is $4\frac{1}{2}$, and proprietors are even content if they only realize $3\frac{1}{2}$ on their capital, comprising that locked up in buildings, machinery and improvements. The *metayeur* and his family are well fed; they have a like stake with the proprietor in the results, and at the end of a year a laborer who would have remained a laborer still has, in addition to comforts, a cash dividend of two thousand francs. The principal item of expense in farm management is wages; under the *metayage* plan, where the whole family labors, it becomes a minimum. It is evident, therefore, that the more farm wages rise the more the *metayage* solution imposes itself.

Salicylic Acid,

as a disinfectant and a preservative, still excites attention. No hygienic reasons exist, according to Pasteur, why in certain quantities the acid ought not to be tolerated in food and drink. The French Government has prohibited its use in beer and wine, as that use was abused. In the case of cattle disease—foot and mouth, lung and charbon—salicylic acid is employed by veterinary surgeons with great advantage. If it does not prevent the production of the virus in the organism of the animal, it undoubtedly stops its march. The one-tenth of an ounce dissolved in a quart of warm water and sprinkled over the litter will immediately sweeten a stable; half a quart of the solution mixed with the ordinary drink suffices for an animal diseased. The acid, too, can be dusted over the sore feet, or the mouth and nostrils washed with a solution. If poultry be attacked with cholera, add a little in their drinking vessels, and mix some up in bread pills and honey.

Items.

There was a milk or dairy show held at Ghent last July, when the milk of cows of the Durham, Dutch and Flemish breeds was exhaustively ex-

amined as to density and quality. It has been demonstrated that the difference in richness can vary as 1 to 3—that is, from 4½ to 15 per cent.; the yield of milk per day can vary as 1 to 5. In the great majority of cases the first milkings are superior in density to the others in a day, and that density oscillates between 1.026 and 1.038. Upon 168 samples of milk 29 were inferior in density to 1.029; hence, according to the experts, they ought to be suspected of being dosed with water. In addition to density as a test for the purity of milk, must be included the per centage of cream. Now, at Ghent milk unquestionably pure yielded only 5 per cent. of cream. Practical conclusion—it is difficult to decide when milk is pure.

Owing to the destruction of the vines and the great damage done to orchards by the severe frost of 1879-80, the production of alcohol has diminished. To remedy this state of things farmers are being actively urged to embark in the distillation of beet—why not potatoes, as in Germany?—by the ordinary alembics. Prizes are offered to encourage the new industry.

Some prizes were awarded to agricultural industries at the Electricity Exhibition. The subject, however, is not yet ripe for practical consideration. The problem to solve is not the application of electricity as a motive power, but of the cheap production of electricity as that power. F. C.

Paris, November 5, 1881.

Will Sheep Pay?

The Deer Creek Farmers' Club held its November meeting on the 5th, at the farm of Mr. Hosea Barnes, near Churchville, there being present, besides the members, a number of invited guests.

The customary inspection of the farm and premises was made by a committee consisting of Messrs. R. H. Archer, Wm. Munnikhuyzen and B. Silver, Jr. Their report was exceedingly complimentary to Mr. Barnes as an energetic, industrious and judicious farmer, who keeps up his reputation of having one of the finest farms in that section of the country. The committee thought, also, that no section of the county had improved more, within the last 20 years, than that between Churchville and Aberdeen. Mr. Barnes's corn was the finest the committee had seen this season; his wheat, on fallow ground, was strong, healthy in appearance, and well put in. His horses, of which he has some fine ones, were in good condition, as were likewise a fine lot of pigs. Mr. Barnes has what every farmer should have, namely: a thoroughbred Short-horn bull. Everything, in brief, was in fine order and the tools under shelter.

The question for discussion was

Will Sheep Pay?

for the report of which we are indebted to our friends of the *Egis*.

Hosea Barnes did not think they would pay on small farms. It is not well to graze sheep with cattle and horses. He had last year 100 sheep and lambs, had sold all but 13, and was

satisfied he could have cut \$400 worth of hay if it had not been for the sheep. Where you have wood cutting or other land to clear up sheep will pay, and also on large farms. He did not think, either, that his sheep had left the land in any better condition, from their droppings. He would rather keep one bullock than five sheep. On large farms they would pay, but not on small ones.

B. Silver, Jr., did not believe sheep will pay. Take what it costs to feed sheep and raise lambs, and compare it with what the land would produce in hay, and you will find the hay far ahead.

The President suggested that you must take into consideration the deterioration of land by cutting hay and the improvement to it by keeping sheep.

Mr. Silver, resuming, said it was cheaper to use artificial fertilizers to keep land up than to improve land by pasturing. He did not believe an acre of ground would keep over three sheep, and the same quantity of ground would fatten a steer.

H. C. Bowman had kept sheep a few years ago, and they paid very well until dogs got among them. That is the chief reason why more farmers do not keep sheep. The profits on sheep are larger for the amount invested than on any other stock.

S. B. Silver said that the object of farming should be to improve land, and when he compared the cost of raising wheat or other crops with the cost and care of sheep, he must decide in favor of sheep. He has 40 acres of grass which will pasture 160 sheep 9 months in the year, for 20 years to come, without the application of any other fertilizer than that produced by the sheep. It is better now than it was 10 years ago, and had only had in the meantime a slight sprinkling of rough litter over a portion of the field. Last year his sheep, consisting of 180 head, were only wintered in the stable twelve weeks, and the profits were \$975. He sold 220 lambs, at from \$3.50 to \$5 each; his wool brought 20 cents a pound and upwards, and has often sold at from 30 to 35 cents. They were pastured on the 40 acres referred to. The field might cut now two tons of hay to the acre, but without top dressing in seven years it would not cut one ton to the acre. He could see no disadvantage to other stock from pasturing sheep with them. This year his sheep had the run of the place and his cattle were fatter than he ever had them. Sheep should not be put on farms that will not naturally grow grass. On Deer Creek lands, however, more money can be made on sheep than on wheat, corn or hay. In raising sheep, farmers ought to have lambs to sell early in the season, when they will bring from 7 to 8 cents a pound. He sold on the 14th of last April, 72 lambs, at \$4.50 apiece, and the most of them were not over two months old. Well-wooled sheep should be selected, and a thoroughbred South-down buck used. The latter should be five or six years old, and one buck be provided for every 40 common ewes. If you want 100 breeding ewes, you should handle 150, pick out 100 and sell the remainder. To make sheep pay a man must understand how to do it. There is many an acre where cattle cannot be kept, but where sheep might profitably be raised.

Wm. Webster said he hardly knew what to add to Mr. Silver's remarks. Of all stock there is more money in sheep than in anything that can be raised. All the productive farms of the county have grazed stock, and if we had proper security against dogs the capital invested in sheep in Harford county, would soon equal that invested in beef cattle. A flock of sheep never recovers from an attack by dogs. They are no longer suitable for breeding purposes and will not fatten as well; but if we count the losses on hay, we will find it more than from dogs getting among sheep.

Bennett A. Gilbert thought sheep might be profitable in his neighborhood, where there is much waste land. Like everything else, they require a good deal of care.

Johns H. Janney had tried common sheep with Cotswold bucks, but found it difficult to get lambs fat. Then he tried common ewes with pure Southdown bucks. The lambs were easily fattened and ready for market early. The buck should be put with the ewes by the 1st of August, so as to have lambs dropped by the 1st of January. He had also tried thoroughbred Southdowns and had done well with them. He started with 25 ewes, and in five years had sold \$1,950 worth of sheep, lambs and wool, and has now 52 ewes and bucks. Not many kinds of stock will pay better than that. Sheep may be injured by being kept too much in the stable; even if snow is on the ground it is better to let them out. They need a great deal of water and salt in the winter. No kind of stock will injure grass, but the proper way is to graze cattle and follow the cattle by sheep.

J. T. Bradford believed sheep would pay better, according to the amount invested, than any other stock. The only difficulty is with the dogs. It is not profitable to keep sheep with other stock, but if followed after cattle they will do better. Milch cows will not milk freely nor do so well when pastured with sheep. Farmers for profit should keep both cattle and sheep, but if both cannot be kept for the same amount invested, and with the risk of dogs removed, he would prefer sheep.

James Lee never owned sheep, and never thought there would be as much profit in them as in cattle. There is a great deal of risk with sheep.

Lycurgus Lee said many sheep were raised in Kansas where he resides, but has not handled any himself.

R. Harris Archer did not think there was as much money in sheep as in cattle. Several gentlemen present made \$1,000 on cattle the past year, which could not have been made on sheep. Any one with ordinary common sense can attend to cattle, but he would not like to trust 300 or 400 ewes to an ordinary man. Another point against sheep is that they will not stay where you put them, but go all over the farm. Cattle do not.

Wm. Munnikhuysen said he commenced farming on a poor farm, and when he got grass to grow he tried cattle. He bought 4 and made \$7 or \$8 apiece. The next year 5, and made \$15 or \$16 apiece; then 6 cattle, and made \$14 or \$15 a head. That fall he bought 20 sheep: one was

killed, and from the 19 left he sold 24 lambs, at \$5 each, and 120 lbs. of wool, at 30 cents per lb., making \$156. The next year he kept 40 sheep, from which he sold \$407 worth of lambs, wool and sheep, and had 24 sheep left. His six cattle cost \$140 and made \$85. The first 20 sheep only cost \$80, and made \$156. His land had improved by pasturing with sheep. He therefore concluded that sheep do pay. Found no difficulty in pasturing sheep with milch cows, oxen or steers. In fact, cattle are a great protection to sheep.

Wm. F. Hays was not sure sheep would pay, and asked Mr. Silas B. Silver the cost of keeping sheep. The latter replied that he could have them pastured for one cent a day, and thought it dear at that, considering the benefit they are to land.

John Moores agreed with other members in thinking sheep pay a little better than other stock. On any ordinary farm \$15 to the acre can be made with sheep. They certainly improve land, although they eat the grass very short. With a large number of sheep it would pay to keep some one with them. To keep sheep successfully in Harford, farmers want some protection from dogs. In his neighborhood much injury had recently been done to sheep by dogs. He would like to see sheep raising encouraged.

Jas. H. Bell said there was no doubt but for the danger of injury from dogs sheep would pay better than raising wheat, corn, tomatoes, or keeping cattle. By making a specialty of sheep we would see our lands improving faster than by any other mode of treatment. He had 56 sheep; one was killed by dogs, one died, and he raised 42 lambs, which he sold at from \$3.25 to \$4 a head.

Bennett H. Barnes said that two years ago he made money on sheep, but last year, he lost. Last September he bought 60 ewes at \$210, and 2 bucks for \$12. Seven ewes died, and out of the 60 ewes he only had 40 lambs. These were sold at \$3.35 apiece; the ewes at \$3.50 each and the bucks for \$12. Allowing the manure to pay for keeping in winter, he lost \$60; for the hay which might have been cut on the land the sheep went over could have been sold for \$400.

Geo. A. Gilbert said he has a few sheep, and they pay as well as other stock for the money invested.

The President, Mr. Geo. E. Silver, closed the discussion by summing up the general opinion of the club to be that sheep do pay.

The club adjourned to meet at Mr. Jas. H. Ball's, on the 3d of December, when the following subject will be discussed:

"Best system of farming to keep up the fertility of farms while raising produce for canning purposes."

The "Enterprise" Club.

Messrs. Editors American Farmer:

Saturday, the 12th inst., was wet, cloudy, and a thoroughly unpleasant day, but the "Enterprise" Club, nothing daunted by mud and sloop and rain, met at the house of Joseph T. Moore. Thirteen members were present, together with the following invited guests, viz.: Janney Shoemaker, William Lea, B. D. Palmer, Robert R. Moore and J. L. Massey.

Not desiring to make early widows of our wives, we did not make a very thorough inspection of the premises, as it was rainy and the clouds very threatening. We saw enough, however, to establish the fact that our host carries into his farm operations the same system and promptness that has characterized his whole business career and made a success of whatever he has laid his hand to. Everything on this farm is attended to on time; nothing is ever allowed to get behindhand. The corn crop was nearly all housed in nice condition. A rule of the farm is not to leave any corn shucked in the field over night; consequently he does not have wet corn to loft as frequently as some of his neighbors who do not follow this excellent rule. Six pens of Berkshire hogs were looking healthy, and some of them were fat. The wheat fields were green and promising.

The adjoining farm of about 140 acres, lately purchased by Mr. Moore for \$10,000, is beginning already to show that the wise precepts of the "Enterprise" are not all lost on our host, as is evidenced by the huge pile of lime and the heavy coat of manure that are going on to a sod-field to be plowed for next year's corn crop.

When once more settled in dry and comfortable quarters, Arthur Stabler was chosen to preside, and the minutes of last meeting were read and approved. It was decided to hold the annual meeting, or Farmer's Convention, in January, as usual.

Fred. Stabler desired to know the observations of members as to the germination of wheat this fall. The facts elicited may be summed up as follows: Some wheat sowed early in land plowed just before sowing germinated poorly, but the stand is probably sufficient to make a crop. Wheat sowed on fallow land, plowed and put in condition early, and all wheat sowed the first ten days in October, came up well.

The vote being taken as to the best kind of three-horse plow, the Wiard and the Syracuse were the leading favorites, with advocates about equally balanced.

Joseph T. Moore asked if members would advise plowing under oyster-shell lime this fall in plowing for corn.

S. Hopkins said he would recommend leaving the lime in large heaps covered with earth until spring, then when the ground was plowed and harrowed, put the lime in order and spread at once on top.

W. Lea would put lime in all cases on top of plowed land, or top-dress grass lands that were not to be plowed soon. He would leave the lime in a large heap uncovered. The main point is to keep the water from running underneath, which can be prevented by a slight trench around the pile.

R. B. Farquhar would plow under, as it is more convenient and cheaper to spread at once, and the lime gets pretty thoroughly mixed with the soil in plowing.

Charles H. Brooke prefers to leave lime under cover until ready to slake and spread. He has had splendid results, from lime plowed under for corn, in the following grass crop. He does not like putting it on top of land plowed for corn, as in the rotation he has adopted (two

crops of wheat after corn) it would throw most of the lime in the bottom of the furrow when plowed for the second crop of wheat and set in grass, whereas if plowed under with the sod it will nearly all be thrown on the surface again when broken for wheat and be near the roots of the clover plants.

B. D. Palmer would rather plow under lime than to leave it exposed to too much wet, making a hydrate, rendering a large portion insoluble and therefore worthless.

Arthur Stabler said it will pay any farmer to have a temporary movable shed under which to prepare lime. The most satisfactory job he had ever had was when he had slaked lime under an old brickyard shed, when it more than doubled in bulk, and it was then spread in a dry, fine state with a lime-spreader, at the rate of about forty bushels per acre. He can spread more evenly and faster with a spreader.

A member having a poor stand of grass in wheat-stubble was advised to leave it until spring, then harrow well and sow orchard grass and clover, and top-dress with manure if convenient to do so.

Shall I sell young cattle now at 44 cents per pound or feed them in the open field until January, with a prospect of improvement in cattle and better price? Most of the stock-raisers present thought that if exposed to the weather they would hardly improve sufficiently to realize a profit by keeping longer, and would sell now.

After discussing several other questions of a personal and local interest, and having a good time generally, the Club adjourned, to meet at B. H. Miller's in December, when it is to be hoped enough of interest to farmers in general will transpire to make a letter to the *Farmer* desirable. N. E. D.

Montgomery Co., Md., Nov. 14, 1881.

Reading Farmers.

Now that the season of comparative leisure for the farmer has arrived, we naturally let our thoughts run to other topics than planting, sowing, and reaping. It is a wise providence that, when nature enters upon her annual rest, man, too, in a certain degree can cease from the more active labors of life, and secure that rest and recuperation so much needed.

The long evenings enjoyed at this season give the agriculturist opportunities for mental improvement, by reading or by social intercourse, so impracticable at other seasons. We were impelled to write upon the above subject from hearing a casual remark, that Maryland farmers, as a rule, read but little. Of course, we understood to be meant by this that they read but little of the agricultural literature of the day. We are inclined to agree here, and we would ask, why this indifference? We think it is largely owing to a prejudice against so-called "book farming." It is a fact that fifty per cent. of the farmers of our acquaintance do not take an agricultural paper. When questioned as to why they do not, some will assert that no paper or book can learn them anything about their business. Others assume that "city

editors" know nothing about farming. Others, penny wise and pound foolish, plead that they cannot afford it, but cheerfully lose in the course of the year ten times or more the cost of a year's subscription through ignorance of what they might have known through a paper devoted to their profession. As an instance of this, we read only last week of a Pennsylvania farmer who couldn't afford to take a paper, but sold his entire crop of potatoes for 40 cents per bushel, when they were being quoted at \$1.00 per bushel. This is only one instance among thousands which occur almost daily. We recollect how, several years ago, the fruit-growers of this section were being duped by swindling "tree peddlers," who charged exorbitant prices for plants and trees which could be obtained for less than one-third of the amount charged, did the grower but take an agricultural paper and thereby keep himself posted as to prices, etc. Although accrediting themselves with a great deal of wisdom and sagacity, they paid (and are still paying) many times over the cost of a paper for their ignorance, besides depriving themselves and families of the enjoyment a good paper affords.

We are glad to say just here that of all the agricultural papers we have seen and read, not one but has been a first-class family paper, moral and refining in its teachings. This is a point not to be overlooked by the head of a family, since the mails are flooded by so many of the trashy literary papers of the day. The rising generation is a reading one, hence the importance of securing good reading for the young. It is impossible to sum up the advantages derived by farmers from reading and informing themselves concerning their business. An agricultural paper is really an "experience meeting" of farmers, and this interchange of ideas and experiences through its columns cannot but be instructive to its many readers. To illustrate: In our last we wrote of the total destruction of the cabbage crop by worms, and asked for a remedy. A few days later we received from a subscriber away down in Alabama an account of how he destroyed the worms upon two acres of cabbages, by frequent sprinkling of scalding water upon the plants, thus saving his crop, which is now netting him 4 cents per pound. We got, not many years ago, several items from agricultural papers that have paid us hundreds of dollars.

Notwithstanding the prejudice against "book farmers," agriculture is indebted to them for the progress that has been made during the past. It is they who have lightened the burdens of farmers and raised their calling from low drudgery to a level with the other professions. To them is due the improvement of seed, implements and stock, and all that pertains to high farming. As proof of the foolishness of this prejudice, it will be noticed that our progressive farmers are reading men, who apply science to their farming. They acquaint themselves with the chemical nature of their soils and all that tends to their fertility, etc.; the improvement of seeds and the introduction of new plants, fruits, and the breeding and improvement of the domestic animals. Aside from all these advantages, the providing of good reading not only improves the mind, but serves to keep men

within the domestic circle. Man is so constituted that he must have some means of passing his leisure time, and many are kept from the saloons and grogeries by an abundant supply of good reading at home. Besides this, the farmer is, in a measure, an isolated being, dependent for his information of what is going on in the world upon what he gathers through the medium of the press. His boys will take additional interest in what pertains to farming, instead of growing up to regard it as a life of drudgery; they will learn to love their calling, and be less likely to be drawn away from the home circle into the dangerous whirlpool of city life. Is it true that all are not called by nature to be farmers, but we know of no higher or nobler calling.

A common complaint nowadays is that advertisements take up much of the space of agricultural papers which should be devoted to reading matter. But the advertisements in themselves are often worth more to the subscriber than the rest of the paper, from the fact that nearly everything advertised is for the use of the farmer. Through them he learns where machinery, fertilizers, seed, stock, fowls, fruits, plants, etc., can be obtained. In short, they are the farmer's directory, and where too much space is not given in comparison with other matter, we are inclined to regard the advertisements as one of the best features of an agricultural paper. So, friends and fellow-subscribers, let us give the "Old Pioneer" an extra push, by way of encouraging its publishers in their contemplated improvement. R. S. COLE.

Cedar Hill Fruit Farm, Md., Nov. 22, 1881.

Choice of Seed in Cotton Growing.

A Mississippi planter has on exhibition at the Atlanta Cotton Fair a bale of cotton, pronounced by many good judges as the finest short staple cotton ever seen in Atlanta. His especial hobby is the selection of his seed. It is not a question of different varieties, but of good and bad seed of the common varieties. He has the seed of his best stalks selected every year for planting; and he claims that it is by a judicious selection of seed that the cotton can be made better. It is needless to say, remarks a critical observer, that as a rule the selection of seed and of guano, as well as the methods of culture, are matters of accident and not of exact study. There is no reason why the greater part of the inferior cotton that sells for eight or nine cents might not, under a careful system of agriculture and manipulation, be made to sell for ten or twelve cents. Careful agriculture—if need be, scientific agriculture—this is what the South needs quite as much as manufactures and capital. These samples of cotton are not a very great attraction to the Southern farmers that visit the exhibition, but the lessons that are to be learned from the experiments that have produced them are the most important lessons by all odds that the exhibition can teach.

Renew your subscription promptly, and endeavor to forward with your own at least one new name.

The Application of Farm-Yard Dung.

Dr. J. B. Lawes, the eminent English chemist and farmer, in a letter to the *New England Farmer*, thus gives his views on the treatment of farm-yard manure:

The economical application of farm-yard dung must, to a certain extent, be based upon its composition, and there are two processes by which this may be ascertained, first by direct analysis, and second by calculation.

Many years ago I published a series of calculations based upon the food consumed upon a farm of 400 acres, the quantity of straw used as litter, and the loss by respiration. The farm was estimated to have 100 acres in turnips or mangels, 100 in hay, and 200 in wheat and barley. The amount of dung produced was equal to 957 tons (of 2,000 pounds), or about 2½ tons for each acre. The composition per ton was as follows:

Water.....	1,400
Dry Matter.....	600
Minerals.....	55½
Phosphoric acid as phosphate of lime.....	10
Potash.....	10½
Nitrogen.....	13

This estimate agrees very well with the analyses made by Boussingault, Voelcker and ourselves, and may be said to represent the composition of good unfertilized farm-yard manure. We are indebted to Dr. Voelcker for several analyses of the dung in different stages of decomposition, and we show that only a very small proportion, probably not more than two pounds of the 13 pounds of nitrogen contained in each ton, is in the form of ammonia. Considerably more than 90 per cent. of the whole of the dung consists therefore of water and wood. A large proportion of the manure constituents of the dung exists in combination with the straw or the solid excrements of the animals, substances which decompose very slowly in the soil, and for this reason it takes a larger amount of dung to produce much effect on vegetation. Our experiments lead us to the conclusion that the influence of one dressing of dung may not be entirely at an end for 20 or 30 years, or perhaps even a longer period.

With the composition of dung before me, and the known composition and condition of the various ingredients it contains, the question has often occurred to me as to whether it will be possible to do anything by way of improving its fertilizing powers. Ought we to fix the ammonia; or ought we to try and manipulate it in some way to hasten its action? If we can get the full effect of an artificial manure in one year, why must we wait a lifetime to see the end of one application of dung? Time is money; the old-fashioned idea that a manure is valuable for its lasting properties will not bear argument, as, if true, it would be better to leave bones and phosphate rock unground.

With all this scientific prelude, I am bound to confess that I am just as helpless in regard to the management or improvement of dung as the most old-fashioned farmers. It is of no use fixing ammonia where there is hardly any to fix. It costs nothing to look at your dung with the

idea of doing something to it; but you certainly cannot touch it without going to some considerable expense. I, for my part, therefore, am content to let it alone. As I grow a good many mangels, I apply the greater part of the dung to this crop, my practice being to open out the furrows and apply about twenty tons per acre, then, after earthing up the furrows, I proceed to drill the seed upon the top.

If I did not grow roots I should apply the dung in autumn to the clover or grass; this, of course, would involve exposure to the atmosphere, but I should not fear much loss on this account, or at all events, I do not think there would be more by this process than by any other.

To give some idea of our attempt to estimate the loss of the ingredients contained in dung, I may say that we applied it to grass land between 1856 and 1863, and having taken a crop of hay every year since, at the end of 20 years we had only got back 15 per cent. of the nitrogen supplied in the manure, less than one-half of the potash, and not much more than one-third of the phosphoric acid. The effect of the dung last applied, 18 years ago, is still quite distinct, and when it will come to an end no one can predict. On the whole, as regards the question of economy, I am therefore inclined to advise that the dung should be carted from the yards to the fields, and left there in a heap until required for application, or that it should be applied direct from the yards. All labor expended upon dung adds certainly to the cost, but it does not add with the same certainty to its value.

Waste of Land in Fences.

If a farm of 160 acres is divided by fences into fields of ten acres each, there are five miles of fence. If each fence now is one rod wide, no less than ten acres of land are occupied by them. This is equal to six and one-fourth per cent. of the farm, and the loss of the use of the land is exactly equal to a charge of six and one-fourth per cent. on the whole value of the farm. But nearly every fence row in the country is made a nursery for weeds which stock the whole farm, and make an immense amount of labor necessary to keep them from smothering the crops. Much damage always results to the crops from these weeds, and if these expenses are added to the first one, the whole will easily sum up to twenty per cent., or a tax of one-fifth of the value of the farm. To remedy this we would have fewer fences, or we would clean and sow down the fence rows to grass or clover, and mow them twice a year. Ten acres of clover or timothy would at least supply a farm with seed and a few tons of hay every year. We would, in short, consider the fence rows as a valuable part of the farm, and use them as such.—*Ex.*

We call upon all our readers, wherever situated, who can contribute from their experience or observation anything of interest or profit to their fellow agriculturists, not to withhold it. Also to endeavor to extend our circulation, that mutual benefit to all may ensue.

The Profits of Farming.

Mr. W. D. Philbrick, a well-known writer and practical gardener, gives some views as to the general profits of farming in New England, which are applicable to other sections of the Atlantic coastward, especially those fortunately situated as regards markets. He says: As a rule the profits of farming in New England are very small, and railroads have brought articles cheaply raised at the West into competition. New Englanders must therefore raise those articles which will not bear long conveyance, such as fresh milk and eggs, fresh vegetables and perishable fruits, or those of a bulky character. The profits of gardening, properly conducted, are much larger than those of farming, on account of the larger capital required and the greater skill needed. He states that the best vegetable gardens near Boston are worth \$1,000 or more per acre. The energetic and skillful men who work them use a floating capital of \$500 or more per acre, invested in tools, teams, hotbeds, manure, etc. The laboring force is about one man to every acre in summer, and the manure thirty cords per acre every year. Under favorable circumstances the sales amount to over a thousand dollars per acre. In one rare instance a skillful manager had for six years an annual profit of \$400 per acre from his whole garden of 20 acres, or \$8,000 a year. This was before the competition from the South somewhat reduced it. Less capital is required for small fruits than for vegetables, and \$200 or \$300 per acre are regarded as very satisfactory. Currants, at the best, will give fifty cents from each bush, or nearly \$1,000 per acre. Much depends on locality and markets, and constant vigilance.

Planting Forest Trees.

Mr. S. O. Osborn, Stuart, Iowa, planted, four years ago, several acres of forest trees, mostly soft maple and black walnut, and he notes that though the seeds of the latter, even when put in the ground fresh, sometimes remain one or more years without germinating, the plants soon catch up with the maples, which start promptly. Other points of his experience and advice we quote from the *Iowa Homestead*: "The trees measure from four to ten feet, varying in growth and height with the quality and richness of the soil. Some of my four-year-old black walnuts on manured land, have this year made a growth of five feet by actual measurement. The black walnut, like most any other tree, grows far more rapidly in rich soil—and cattle manure wonderfully increases or accelerates its growth. The vitality of the black walnut is really surprising, and it does my soul good to notice and watch the wonderful life and vigour of this most valuable tree. Only plant the nuts and trees will grow if they have half a chance. And now is the time to procure and save the seed—every bushel of which growing in the State ought to be saved for seed. The nuts must not be allowed to get dry, but should be placed on a piece of ground where the water will not stand, and covered with leaves and enough dirt to keep

the leaves from blowing away. Now (immediately) too, is the time to gather white ash seed. I have a quantity now in the cellar, for planting next spring. And now, one more word in behalf of the use of manure, and for the benefit of those in haste for shade or wind-break trees. My ten-year-old soft maples that have been kept well manured by heavy mulching are to-day twice as large as those that were not manured."

Live Stock.

Recent Purchases and Sales of Jerseys.

We are informed that Mr. Andrew Banks, of Baltimore county, has recently purchased from Wm. Crozier, of Long Island, N. Y., the cow Damsel Adele, for \$1,200; the cow Cottage Girl and her cow calf, for \$800; and from J. Newlin Trainer the heifer Arawana May, a daughter of Arawana Buttercup, by Lord Rex, for \$400.

Mr. Frederick Von Kapff has purchased the heifer Maria Brisbane, from T. Alex. Seth, for \$500, and a very fine bull calf, Normandy Pansy, from Colin Cameron, of Pennsylvania, on terms not made public.

Mr. Seth has sold to Wm. Crozier the cow Queen of Fawley and the heifer Ennella, and to Hoover & Co., of Columbus, Ohio, the heifer Escudo, the three last-named being the animals advertised by him in the recent issues of the *American Farmer*. He has also sold to Dr. S. T. Earle, of Queen Anne's county, heifer, Maggie Martin, and a Rex bull calf. And to Dr. James Seth, Talbot Co., Md., cow Miltonia, 6624. Messrs. Hoover & Co. also purchased from Mr. Samuel M. Shoemaker four heifers and two cows; from Col. F. B. Steiner, of Anne Arundel county, a cow and a heifer, and from Dr. S. T. Earle the heifer calves of Valma Hoffman and Melfield, by Jem, 2015.

Mr. S. L. Hoover, of the above-named firm, attended the late fair at Pimlico and selected four cows to be served by his bull Cash Boy, a son of Rex, out of Dido of Middlefield, a bull that recently took first prize at the St. Louis Fair, besides at others in the West, and early last month there was shipped to him Dido of Middlefield and Arawana Queen, belonging to Mr. Jno. E. Phillips, Arawana Buttercup, to Mr. Seth, and Rival's Jewel, to Messrs. Clarke & Jones. We are informed that \$500 have been offered and refused for some of the bull calves likely to result from these crosses.

Mr. Cranor, of Caroline county, Md., has bought of Messrs. Churchman & Jackson, Indianapolis, the Jersey heifer Fair Maid of Perth, by LeBrog's Prize.

The Prize Jerseys Again.

Messrs. Editors *American Farmer*:

The stimulus given to the Jersey interest in Baltimore county by the very liberal special premium offered for herds at our late County Fair is hard to compute. The exciting contest for prizes at the County Fair was only a foretaste of

what we were to see at the Pimlico Fair which has just closed. At this last the prizes offered were very small, and would probably not have brought out the herds but for the excitement which began at the County Fair and the determination not to be outdone which this last-named show engendered in the minds of our breeders. Many of the herds exhibited at the County Fair were unrepresented at the State Fair, but we think it is doing no injustice to say that the best of the county exhibit was again shown at the State Fair, and with some very fine newcomers. Among the last was the very fine display made by Mr. John E. Phillips, whose herd secured first, and of F. B. Steiner, Esq., of Anne Arundel county, neither of whom showed at the County Fair.

Among the new-comers were two very fine cows in the herd of Mr. Andrew Banks, recently purchased, one of which took first premium in the aged cow class at the late New Jersey State Fair, perhaps one of the largest and finest displays of Jerseys made this season; but she fell a victim to the superior excellence of two of our county cows, and only secured "very highly commended" in her class. Mr. Von Kapff also exhibited a new-comer in the two-year-old class—"Maria Brisbane," a very beautiful heifer, and also a bull calf of the most superior excellence, both of which were unfortunate in their classes, being beaten by animals which had been shown at the County Fair. Mr. Seth exhibited a new-comer in his yearling heifer "Champion's Judy," a beautiful gray heifer of great promise, and the only one of the recently purchased that secured a prize, beating the beautiful and exquisite "Duchess of Chatsworth," that won at Timonium. Messrs. Clarke & Jones showed one new-comer in "Rival's Jewel," a half-sister of Mr. Seth's "Rival's Flora," that secured second at Timonium, as well as at Pimlico.

In the three-year-old class of bulls the first prize was awarded to Mr. J. E. Phillips's bull "Watts," the second going to Mr. John Merryman's bull "Beverly." In the two-year-old class of bulls Mr. Banks's magnificent bull "Lord Rex" carried off first again, and he was pronounced by all the finest two-year-olds in the country. In the one-year-old class Mr. Von Kapff took first with "Saturnalia," and Mr. J. E. Phillips second on "Ned Ives." For bull calves the first prize went again to Mr. Banks for his son of "Watts," Mr. Phillips taking second with his bull calf "Sir Rex."

The most hotly contested class was the aged cow class, in which seventeen animals of great excellence were shown. The first prize went to Mr. Seth for his cow "Arawana Buttercup," that took first at the County Fair, the second going to Mr. Phillips for his superb cow "Dido of Middlefield," Mr. Banks's cow "Damsel Adele" (the New Jersey prize cow), and Mr. Phillips's "Arawana Queen" being very highly commended. This class embraced cattle of great value, and the visitors from other States, such as S. L. Horner, Esq., of Ohio, J. W. Whitenack, Esq., of New Jersey, John O. Couch, of Connecticut, and A. P. Rowe, of Virginia, all of whom are experienced Jersey cattle-breeders, and have seen many exhibitions of cattle, said

that this class embraced cattle of a higher average than at any show they had attended.

In the two-year-old class nine animals were exhibited, and the contest was about as warm as in the preceding. The prizes went to Mr. Von Kapff for his "Stella le Brocq" (3d) and to Mr. Phillips for his "Placida," respectively; Mr. Von Kapff's "Maria Brisbane" very highly commended. In the one-year-old class seven were shown and the contest was severe also, but both prizes were carried off by Mr. Seth for his "Champion's Judy" and "Rival's Flora," both fine animals and in excellent condition. The writer was much surprised that the beautiful heifer "Duchess of Chatsworth" of Mr. Banks failed to secure a place, but he feels that the judging was done by a much better judge than himself, and he is not disposed to complain.

In the class for heifer calves Mr. Phillips carried off first for "Dido of Middlefield" (2d), second going to Mr. Von Kapff for "Mabel's Lily," a rival heifer, half sister to those of Messrs. Clark & Jones, and Mr. Seth's mentioned above. Mr. Phillips exhibited two other very fine calves in this class, one a daughter of "Princess Lily" and the other a granddaughter of "Arawana Buttercup." It is a matter of surprise to the writer how it was possible to have omitted these calves in making the awards. We thought these the finest pair of heifers which it had ever been our privilege to see.

There were only three imported animals shown, Mr. Phillips taking first and second on cows over three years old, and Mr. Banks first on cows two years old.

There were some very fine unregistered or Channel Island cattle shown by Messrs. Blunt, of Montgomery county, and Shipley and Coates, of Baltimore county, the herd prize going to Mr. Blunt.

Altogether the display was very fine, and shows that our county breeders are thoroughly alive to the importance of keeping pace with the improvements in Jersey breeding. The herd of Mr. Phillips, which has not been exhibited before, is very fine indeed, and if Mr. Phillips succeeds in getting a bull worthy to head his herd of very fine cows, he will have a herd very hard to beat indeed, and our breeders will have to look out for him at the fairs next year. x.

What Kinds of Horses to Raise.

The professional breeder of high-bred carriage and trotting horses is the only man who, as a rule, breeds and handles in such a manner as to successfully meet the demands made by those who keep carriage and driving teams worth from \$600 to \$1,200 the pair. A few chance horses of the kind arise from more obscure sources; but no one expects them to come from other than systematic, intelligent effort, backed up with pretty liberal capital in the hands of men who fully comprehend the undertaking. There are always buyers ready to take a fairly stylish double team that can go in three minutes or under, at a good figure; and for single drivers of like road qualities, at \$300 to \$500, if of good fair size, and stylish. Next to these, in price, comes the Per-

cheron-Normans and Clydes, generally having one-half to seven-eighths of the foreign blood, and being in weight from 1,400 to 1,600 pounds each, and worth, in the market, from \$300 to \$600 per pair. These horses are driven to heavy trucks capable of bearing up sixty to eighty hundred, and a pair of these heavy horses move off with such a load on streets in fair condition, with ease. The incoming and outgoing shipments are so heavy, and all the time increasing in the larger cities, that the demand for heavy horses will not, in any year, lessen, but will, on the other hand, steadily increase. These horses are driven upon a walk, consequently rarely get overheated or lamed.—*Nat. Live-Stock Journal*.

Good Advice to Sellers of Beef Cattle.

Those who raise and feed beef cattle will find it of great advantage to market their own stock, by shipping and selling it at some one of the great markets of the country. Where this is not convenient, the desired end may be accomplished by making a personal visit to some of the extensive stock yards. This will especially be of advantage if this visit can be made during the time their own cattle are on sale.

A gentleman of my acquaintance, who feeds a fine lot of cattle each year, and who, for profit and convenience, sells them at home, quietly gets on the cars and visits the stock yards about the time his cattle are to be in the market. He says he finds this of advantage in buying, breeding, and feeding. The lessons are so instructive, he says, that it pays in dollars and cents to pay railroad fare and take the time from his large and extensive business. As his cattle command the highest prices, from their quality, and are readily sold—sometimes six months before delivery—and there is every evidence that he is making money, we have reason to believe his methods are good.

Farmers too often sell to local shippers who, for the purpose of buying at the lowest possible rates, misrepresent the state of the market, as well as the quality of stock most in request and commanding the highest prices. Acting upon such information alone, a breeder or feeder may make an expenditure of time and money that would be wrong, and take years to otherwise find the error of his ways.—*Nat. Live-Stock Journal*.

The Fat-Stock Show at Chicago.

This exhibition, the fourth held under the management of the State Board of Agriculture of Illinois, November 8 to 12, was a great success, and in many respects superior to either of the preceding shows.

In the cattle class the animals were mostly Shorthorns and Herefords, with a few Devons, Ayrshires and Polled Angus.

In the grand sweepstakes for any age or breed there were thirty-one entries, twenty-six being Shorthorns and five Herefords. The prize was

awarded the Shorthorn steer McMullen, owned by J. D. Gillett, of Elkhart, Ills., the same steer having also been awarded the prize, by another committee, as best three-year-old steer of any breed in the show. For the best car-load of eight fat cattle, three years and under four, the first prize of \$150 also went to Mr. Gillett and the second, \$75, to Morrow & Muir, of Clintonville, Ky. The same parties took first and second, of same sums, on best and second lots of ten cattle, two years and under three.

A special prize of \$250, offered by Marshall Field, of Chicago, for the best five head of cattle of any age or breed, was awarded by an unanimous vote to the Herefords of the T. L. Miller Co., there being seven lots entered, all Shorthorns but the winners. The weight of the five animals was exactly 10,000 pounds.

The Chicago *Farmer's Review* medals, for best five head of cattle, any age or breed, and for best steer or cow in the show, both went to Col. Gillett.

The prizes for three-year-old grades were awarded as follows: First, Hereford grade, Conqueror; owner, T. L. Miller Co. Second, Shorthorn grade, Talbot; owners, Morrow & Muir, Kentucky. Third, Shorthorn grade, Barney; owner, Col. Gillett.

In two-year-old grade class there were twenty-one entries. First went to Shorthorn Red Lord; second to Oakley, Shorthorn; third to Kansas, Hereford.

In the tests for slaughtered animals, of the three-year class, there were two Shorthorns and one Hereford. The first prize was awarded to the carcass of the Hereford Broadhorns. In the two-year class the prize was awarded to carcass of a Shorthorn; and in the yearling class there was no opposition to a Hereford, owned by H. S. Burleigh.

Working Bulls.

Thousands of dollars are wasted annually in the shape of useless bull-fat and muscle. Bulls are usually kept too fat, especially thoroughbred ones, which stimulates them to be restive and ugly, or at least not so easily managed. With a ring in a bull's nose, and broken to lead, it is a very easy matter to bring him into work in the yoke. I have known a pair to be hitched up, and taken to the field at once, led by the nose, and put to work drawing stones without any trouble whatever. They will soon learn to follow the driver without any leading, and thus readily become a serviceable team. Bulls thus handled, with plenty of work, will rarely do any injury to persons. A bull will live on coarse fare, and on this account makes a cheap worker. He can be made to do more than earn his keep, besides being less dangerous. His stock will be better, and he will be a surer getter. For rough and tough places a bull team is just the thing, as there is no danger of their being injured, and they will save the risks to the horses. Less grain will be required for the horses if the bull is made to do a part of the heavy work. Exposure to storms won't hurt them, which often brings sickness to horses. Better slaves than pets.—*Cor. N. Y. Tribune*.

Bitter Milk.

Bitter milk is a matter of frequent occurrence every fall and winter, or soon after the cows are off from grazing. It is caused, first by bitter herbs in the hay—such as May weed, rag weed, John's wort, etc.—and also by the use of too much overripe food, such as straw, corn stover, or late cut hay. It never occurs when cows are fed on good food, and are thriving, or even holding their own, and are kept comfortably warm. It can be avoided, first, by correcting the error in feeding and exposure; and, secondly, by scalding the milk when it is first drawn, by setting it in pans over a kettle of boiling water till the skin which forms on its top is well wrinkled, and then setting it away to cool for the cream to rise. This treatment will drive out the cause of the bitter flavor, and improve the butter and make it easy to churn.—*Nat. Live-Stock Journal*.

Proportion of Milk to Butter.

A subscriber to the *American Farmer* in Cecil County, Md., who makes a fine article of butter for critical consumers in Baltimore and Philadelphia, some time ago made a comparison of the quantity of milk, from cows of different breeds, necessary to make a pound of butter. Owing to an extra demand he was necessitated to buy milk from some of his neighbors. His own cows are thoroughbred or high-grade Jerseys, and of their milk, 17 lbs. 8 ozs. made one pound of butter; the milk from a herd of grade Short-horns required 24 lbs. to yield one of butter, and that from a herd of native cattle took 27 lbs. 6 ozs.

Sales of Herefords.

Messrs. Price & Jenks, of Nebraska, have recently purchased from Dr. W. H. De Courcey, of Queen Anne's, Md., twelve head of Herefords, for use on their herds of native cattle, and are negotiating for others bred by Messrs. Lloyd and Hardcastle, of Talbot. The firm named have a contract to take all the bull calves Dr. De Courcey raises.

Poultry Enemies.

By G. O. BROWN.

Nothing is more vexatious to the poultry breeder than, after careful attention, trouble and worry of rearing a brood successfully through the season, than to find some morning that his flock has nearly all been killed during the night. At this season these depredations usually begin, and the breeder who has neglected to close up even the small crevices of the poultry house need not be astonished to find some morning his carelessness has cost him the majority of his flock. As soon as the streams begin to freeze up, the mink commences his visits to the poultry houses and yards, generally selecting for the first visit a rainy night; though not on all occasions do they make nocturnal visits, for I have

had them attack my ducks in the middle of the day. If they have made a raid they can be caught, as they are quite sure to return the second night after. By placing either of the traps described elsewhere inside the house, so that the mink or weasel will have to come into it by the route he previously entered, they are quite easily caught. I have caught minks in the common steel trap, by simply setting it uncovered directly in the opening where they had entered the night before, fixing a few pieces of board so that they would have to pass over the trap in entering. Hawks at this season also begin to get troublesome. One of the best, and at the same time very simple, way to get rid of them, if they cannot be caught with a good shotgun with a good marksman to back it, is to take a long pole or rail and set up against the fence, and a set steel trap fastened on the top of it. Place this a few rods from the poultry house and the hawk will soon be caught. Of course, the trap must have a string or stout cord attached to it and the rail, otherwise the trap may be flown away with.

For the benefit of some of our readers who may be annoyed by some of these pests, we give good illustrations of suitable traps and full descriptions which will enable any one to make them. It will be a good plan to have one on hand and not wait until you have need for it. But best of all is to close up the hen house every night securely.

The Maryland Poultry Club

has determined to hold its first exhibition in this city, on Jan. 29, 30 and 31, and Feb. 1, 1882, when a fine display of poultry and pigeons from breeders and fanciers in this vicinity and abroad is expected. Those interested are advised to apply for premium lists to the Secretary, George O. Brown, at THE AMERICAN FARMER office.

Pleasure Grounds and Greenhouse—December, 1881.

By W. D. BRACKENRIDGE, Florist and Nurseryman, Govanstown, Baltimore Co., Md.

In a brief manner we will take a retrospective view of the effects of the last winter's severe cold, and the prolonged heat and drought of the summer and early fall—lately ended—upon flowering shrubs and ornamental trees.

First, the effect of the intense cold resulted in killing down to the snow-line various kinds of deutzias, particularly the double white and pink varieties of *deutzia crenata*. The Japan privet, growing in exposed places, suffered considerably; but this last, on account of its continuing to grow late in the fall, renders it more subject to be injured by hard weather. *Forsythia suspensa* and *F. viridissima*, as well as various kinds of *spirea*s and erect-growing honeysuckles, produced few flowers in early summer; and even many of the lilac flowers got nipped in the bud.

Among ornamental trees the damage done was not so material; a few *Magnolia macrophylla* and *M. tripetala*, as well as the English sycamore, had the bark on the south side of the trunks split open, yet the trees were not killed thereby, and their ultimate recovery from the shock is only a matter of time.

Secondly, the shrubs killed down to the snow-line made extraordinary growths, notwithstanding the long hot, dry spell during summer and early fall, and the young wood is now ripening off well, up to the very points, so that the probability is there will be a profusion of flowers next season.

A singular freak has come over the double spirea *Revesii* and *S. Thunbergii*, also *Wigelia rosea* and *Pyrus japonica*, all of which are bearing a number of perfect flowers at the date we write—November 21st.

In like manner, many of our pear and cherry trees have produced flowers and set a second crop of fruit, which will operate much against their bearing a good crop of fruit the next regular season.

We notice among rare ornamental trees some destined to be popular, when better known. And the first among these is the *Hovenia dulcis*, a native of Japan, of free growth and perfectly hardy, having a habit very much resembling the European linden; a tree of it in our grounds, about twenty feet high, bore in the early part of last summer a profusion of melliferous, greenish flowers, which so attracted bees that during warm days the whole of the top was as crowded with them as the swarming of a hive, and this continued for over two weeks, proving that this tree would be invaluable to the bee-keeper, as an enormous quantity of honey could be extracted by these industrious little insects from a small plantation of it. Further, the peduncles, or foot-stalks, of the flowers become enlarged into a succulent mass, and are eaten by both Chinese and Japanese, the tree being indigenous to both countries. About two dozen of these stems or peduncles ripened with us, and on tasting them we thought the flavor resembled very much that of a ripe pear.

The next ornamental tree we for the present notice is the gold-leaved variety of the Carolina poplar. It is a very fast grower and perfectly hardy, and destined, we think, to take a front stand as an ornamental tree, its broad golden foliage being very beautiful in early summer, as it begins to open and expand its leaves about the latter part of April. The foot-stalk of the leaf is very much dilated or flattened out, and standing, as it does, vertically to the horizon, the least motion of the atmosphere causes it to turn from side to side. At present there is no great stock of it for sale.

Although we consider the introduction of new ornamental trees very desirable, yet we do not think it prudent, in adopting new ones, to set aside or overlook many notable old ones, some of the very best of which have been grossly neglected or overlooked by planters. Among such is the white birch, whose graceful head and milk-white trunk render it an object of beauty for a lawn, which no new importation can outmatch; and its weeping habit, when old, con-

trasts so admirably with the formal and symmetrical beech, field and Norway maple. Some—yea, a vast number of people—will tell you that they don't care for beauty in a tree; it is shade they want. Well, we admit shade of some kind in a hot summer day is very agreeable for a short time, but unfortunately some people pass too much of their time both in and out of doors in the shade, and that is the reason we encounter so many blanched countenances and exhausted physical frames in society. Light, heat and moisture are three of the great agents in the healthy support of both the animal and vegetable kingdom.

We shall at present leave neglected ornamental trees, to be taken up on another occasion, and now remind our readers of some necessary work to be attended to at this season; and as important on this head, we deem as necessary and desirable work the raking up of all leaves from off the lawn and elsewhere. These, with other vegetable refuse, should be piled up in some out-of-the-way place, observing to turn the whole over from time to time, as they ultimately form a valuable earth in which to grow vegetables in hot-beds, as well as for pot-plants.

Dry leaves furnish good bedding for the cow stable, and for that purpose should be stored under cover. They are also valuable in protecting tender shrubs and plants from severe frosts, using a few branches or sprays of evergreens to prevent them from getting blown away by the wind.

In the latitude of Baltimore, and northward, crape myrtles, pomegranates, and similar tender shrubs in the open grounds, require protection. We begin this work by tying the branches together by straw-bands, and then form a bower of any kind of evergreen branches stuck into the ground and then tied together at the top, then introduce a quantity of oak leaves around the base among the branches. This kind of cover forms a better protection from the influence of frosts than the binding up of the branches tight in mats or straw, which latter are subject to getting saturated with water, which in frosty weather becomes a mass of ice. Shelter and shade are what is more required than a dense covering. It is important that this kind of work be attended to at once.

In the matter of cold frames, these ought to be well banked up all around with earth, even though the frame work should be of brick; and by all means provide straw mats or wooden shutters to put over the glass, as plants frozen in early winter will show its baneful effects in spring.

Very many plants considered tender, and therefore kept in the greenhouse, such as verbenas, geraniums, carnations, petunias, nierembergias, wallflowers, pansies or heartsease, sweet-scented violets, with a host of other plants, could, with a small amount of care, be safely wintered in a cold frame or pit, say two feet deep and well drained, the plants during the winter to receive only a moderate supply of water; and the further care necessary is to keep the frost out, which can easily be done by mats, stable manure or leaves, giving a little air in mild weather, and as much light as possible consistent with the condition of the weather.

Greenhouse.

A greenhouse stocked with well-grown plants is something worth possessing, more particularly at a season of the year when all inanimate nature outside is cased in a coat of ice, or supinely slumbering under a mantle of snow. In the midst of such a scene what a pleasure is derived, on entering a cozy greenhouse, in having the senses of sight and smell regaled by charming camellias, abutilons, hyacinths, carnations, *Daphne odorata*, heliotropes, roses, sweet-scented violets, bouvardias; and then there should be at this season, in prime condition, the gaudy crimson heads of Poinsettia, and wreaths of carmine flowers on the *euphorbia fulgens*. It may be thought that our taste is not over refined in saying that we admire the double wallflower when well grown, both for its fragrance and varied colors in a number of varieties now to be had, but such is our leaning.

The crab-claw cactus and calla lily have their admirers, and ought now to be found in bloom, as well as several kinds of eupatoriums and stevias.

We desire now to remind such of our readers as grow the various kinds of the lily tribe in pots, that a too common practice prevails in this, that so soon as the flowers fade the plant is set aside in some out-of-the-way place, where it does not receive that amount of light and air required for the perfecting of its bulbs for the coming year; and, further, both bulbs and tubers are frequently, when in a dormant state, permitted to become so dry as to shrivel, which weakens them for future growth very much. All should be placed in a situation where they will receive humidity enough to keep them plump; this rule should be extended to the keeping of dahlia roots as well.

Bring into heat hyacinth, tulip and narcissus bulbs that have filled their pots well with roots, as the flowers last much longer when brought into bloom during the cloudy months of winter.

Orchard and Fruit Garden.—December.

Only during open spells of weather, when the ground is free from frost and not too wet, will there be opportunity for work in the orchard; advantage can be taken of such times, and planting can be done as well then as earlier. It frequently occurs that trees purchased in the fall are trenched, or "heeled in," as the nurserymen say, in order to get some other work done that is pressing at the time; and then from one thing to another attention is given, until a sudden change in the weather precludes all possibility of getting the trees set out in the fall, as was first intended, and they sometimes necessarily have to remain where they are heeled in until spring; then with the advent of that season come cares and duties without number, so that if the suggestion as given above is acted upon there will be one less important care in the spring catalogue. We have often been asked by successful, good farmers, whether it was not too late to transplant trees; their notion or theory about the matter being that as the ground had been frozen to the depth of a few inches—though it was again clear of all frost

and the weather balmy as in April—it would not do to remove trees until spring time. Of course, those who read regularly the *American Farmer* are nearer abreast with the progress of the times than questions and theories such as the foregoing would indicate the "anti-book-farming" class to be. Planting in the orchard can be performed just as successfully in December or January as in November or March, provided the temperature of the weather and the condition of the soil are favorable. Some of the "self-sufficient," however, pretend to believe that, if a hard freeze should follow soon after planting, the trees are likely to sustain injury, which, by the way, is as much of an absurdity as the other. But, then, here comes one of the old-fashioned farmers who believes in the moon and signs innumerable. "The moon is in the goin' down," says he; "it is a bad time to plant trees now," and he delays it until "the sign" or the moon is just right, caring far more about planting in the right sign than about planting rightly in the ground. It does seem sometimes that it requires all kinds of people to make a world—at least such a world as ours.

In the *Fruit garden* any unfinished jobs of mulching strawberry, raspberry or blackberry beds can be attended to. If coarse stable manure is not available for the purpose, straw, pine-fallings, or any other litter will answer the purpose and prove beneficial to both plants and soil.

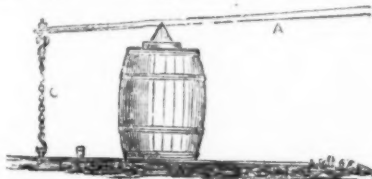
Grapevines can be pruned during the mild spells of weather, but when this work is performed it will be well to remember that different varieties require different treatment; the strong-growing kinds require more cane to be left for the production of fruit than do the feebler, slow-growing kinds. If the former are closely pruned it usually is at a sacrifice of seventy-five per cent. of a crop of fruit for the year following such treatment. From six to ten eyes or buds should be left on the strong canes of the vigorous growers, while from two to six are enough on the slower-growing varieties.

Good fruit of any kind is not obtained without pains; but considering the small outlay required to supply every home with grapevines of good kinds—enough, at least, to supply the wants of the family—and the small amount of care and labor, comparatively, that is required to keep those vines in fair condition, the certainty of an annual crop, the luxuriant healthfulness of the fruit—we say when we consider all these facts, how unfathomably strange that every home in this fair land is not well supplied with grapes. Such, though, is the world we live in, and as our powers are not sufficiently far-reaching to have this eating of "all the good grapes you want" universal, we will try to patiently endure the situation.

Barreling Apples.

In barreled apples, which are often sent long distances by rail and canal, the constant jolting and the usual rough handling considerably bruise the fruit if not securely packed. Hence when filling barrels, at every addition of a half bushel of fruit, gently shake the barrel to secure

closer packing; fill so that quite a number of apples will be above the level of the upper part of the barrel; then place on the head, above which lay a bit of plank that will easily fit



within the end of the barrel, and press the head to its original position. In the figure is shown a cheap and efficient arrangement for the purpose. It is simply a lever of the second class. The lever, A, is connected with plank, B, by chain or rope, C. This arrangement requires two persons, one to press down the lever and the other to drive the hoops.

Vegetable Garden.—December.

The winter crops are now supposed to be in safe quarters, but care must be taken that the covering be put on gradually as the cold increases. On account of the scarcity of such crops by reason of the drought, there is probably more leisure than usual for carrying out projected improvements. It is a good time to make plantations of asparagus and rhubarb. The essentials are a deep rich soil and plenty of room for growth. Open ditches should be cleaned out to facilitate the drying of the land in spring. I have not hitherto got the full benefit of my spare sashes in spring for want of suitable soil on which to set the frames; but lately I dug a long trench, two feet deep and of the proper width, carting away the contents—mostly stiff clay—and replenished with well-enriched compost. On this I shall set a rough frame, and use it for forwarding lettuce, cauliflower, etc., in early spring. One foot of good soil would do very well, but, of course, the deeper the better.

Turnips.—August-sown turnips turned out finely, but those sown in September were, I presume, generally a failure. The following is perhaps worthy of mention: Sowed two patches September 5th, of an acre and one-fourth acre, respectively, the latter on the richest land I had. On No. 1 I sprinkled a little guano along the track of the marker, because the land was wretchedly poor. Plenty of leaves, but no turnips until the late rains, when No. 1 started off finely and is now a fair crop; the other is not worth gathering. The stimulant evidently made the difference in results. I do not ask how broadcasters thin their turnip crop, but I would like to know how those who cultivate turnips usually do their thinning. In Europe, where the crop is more important than it is with us, the process of thinning is done rapidly and with great regularity. The thinner never stoops, but with his square-set hoe pulls and pushes until each plant is just where it ought to be, and no plant is left within nine or ten inches of those singled out to remain. In the absence of the proper hoe, I take corn hoes and cut them down to four inches in width.

With these we chop out parsnips, carrots, turnips, etc., leaving not one plant but several in a bunch. These are afterwards thinned out by hand. It is a fairly good way, but not equal to the other method.

Cabbage.—Concerning the "cabbage famine," there is to be said: Most of us were taken unawares this year. We thought it was the old green worm, and thought we had no reason to be alarmed. Timely and repeated doses of lime will probably conquer the new comer. Henderson says that white hellebore will do it when the plants are small, but that it would be unsafe to use it when the head begins to form. Better have nothing to do with poisons. Let us try lime, soot, and such like. Garden pests, as a rule, like to prey upon weak plants, and our cabbages were unusually feeble this year on account of the heat and drought. I notice that the poorest crops of potatoes cost most for Paris green. Many will be deterred from planting cabbage next year, but those who succeed will be all the better rewarded for their pains.

Celery, &c.—The recent rains have revived the celery wonderfully, but much of it will be of unmarketable size. The best thing to do with such is to experiment with the keeping of it in cellars and otherwise, as detailed in the article entitled "Easy Blanching of Celery," in the November number. I mean to try it and will report.

Another most suggestive article is that on the level culture of hoed crops. I confess I have never yet had the courage to desist from hilling potatoes, but the reasoning in that article is surely correct. Circumstances compel me to hill corn in order to keep down the weeds; otherwise I shouldn't. I remember when some one was bold enough to suggest in an English gardening journal that no earthing up should be practiced on the brassica tribe, but no one at the time ventured to second the proposal. Such is prejudice. Who, now-a-days, earths up his cabbage or cauliflower? Certainly it is not often done in America.

Further than making things tidy, there is not much gardening to be done at this season. The approaching cold will suggest mats for the frames. Cauliflower and lettuce may be planted, using a mild hotbed of leaves and stable manure to give them a start, but always accompanied with proper ventilation. Those who have convenience for forcing rhubarb should not fail to lift a few roots before the ground is frozen. A warm, moist cellar will suit, or they may be placed under the greenhouse stage and some earth thrown around them. Horse-radish should be dug up and the side roots saved for spring planting. With this article, as with glass, it is "this side up with care." Mark the upper end by a square cut and cut the lower end slopingly; otherwise you may lose your reckoning.

J. WATSON.

THE CULTIVATION OF COTTON.—The Milford Del., *News* suggests that the people of the lower peninsula engage in the cultivation of cotton.—Judging from the comparative success that attended the cultivation of about 300 acres of it in Pa., it thinks it can be made a complete success in the lower part of Delaware and Maryland.

Bee Notes for December.

But little can be done for the bees during this month, except to keep them quiet. Under no circumstances open the hives to excite them, as it will prove injurious to their welfare. If any were overlooked in packing up for winter, select some fine day when they can fly, to give them the needed attention they may require. If they should be found short of stores they can be assisted through the winter by giving them sealed honey in the sections, placed beside the combs in close proximity to the cluster. A tray of candy may be placed directly over the bees on top the frames and starvation prevented. Make the candy of best white sugar, and after "creaming" it, as the confectioners term it, place it in the shallow trays, made by nailing a piece of picture-backing to a small frame work, the size of the top of hive, and after pressing it into the tray turn it over the cluster; the heat and moisture from the bees will keep it soft so they can readily consume it at any time. This method has saved many colonies when their stores gave out.

If the hives are wintered on their summer stands, keep them free from ice and snow and in a sheltered place from the north winds, in the sun, if possible. Successful wintering requires plenty of bees and stores, a warm, dry, well-ventilated hive with a good queen, and perfect quiet. Contract the entrance to one-half inch as the cold weather approaches. If honey boards are used over the bees in the cap, have at least two holes bored and covered with wire cloth, and fill the caps with chaff, leaves, cut-straw, or anything to allow the moisture to escape slowly. Don't allow the entrance to become closed with ice or dead bees, as there is danger of suffocation, although of rare occurrence when upward ventilation is given. With these precautions the bees will winter in ordinary winters without loss to the bee-keeper. If the bees are to be kept in doors, don't carry them in before the cold weather fairly sets in, and keep them in as even a temperature as possible and in a dry, dark place. Be sure the entrances are contracted so mice cannot gain admittance and annoy the bees. Outdoor wintering is the safest and least trouble.

Hay, straw or chaff scattered about in front of the hives after a fall of snow will save thousands of bees from perishing, and should be repeated after each snow storm. This is an excellent time to make selections of stock for the coming season. Provide your hives for the next season's swarms, and have them all made and painted ready for the "good time coming." The sections and clamps can all be got ready to put on the hives, crates for shipping the supplies, honey all got in readiness, and much hard labor can be avoided in the busy time in the spring. Remember, success in bee-keeping depends on the bee-keeper as much as the bees, and unless you have the proper appliances to aid them with at the proper time, failure will surely follow. All this can be prevented by getting ready, during the repose of the bees, for their wants, while you have the leisure time usually attending most bee-keepers at this

season. I cannot more forcibly express my views in this connection than by quoting from eminent authority: "One of the absolute requirements of successful bee-keeping is prompt attention to all its varied duties. Neglect is the rock on which many bee-keepers, especially farmers, find too often they have wrecked their success. There is no doubt that more colonies or swarms die from starvation than from all the bee diseases known to the bee-keeper. And why is this? Neglect is the apicide. The loss each season by absconding swarms is incalculable, and whom must we blame? Neglect. The loss every season by enforced idleness of queen and workers, just because room is denied them, is enormous. Who is the guilty party? Plainly, neglect. In these and a hundred other ways indifference to the wants of the bees, which require but a few moments, greatly lessen the profits of bee-keeping. If we would be successful, promptitude must be our motto. Each colony of bees requires but very little care and attention; our every interest demands that this be not denied nor even granted grudgingly. The very fact that this attention is slight renders it more liable to be neglected, but this neglect always involves loss—often disaster."

Study well their habits, then, and learn their wants, and all the difficulties that seemingly beset the beginner will vanish like dew before the sun, and success will spring up on every hand. To illustrate successful bee culture more fully, I would refer those interested to the results of a few of our prominent bee-keepers, who have devoted their time to honey-producing during the past season. L. C. Root, of Mohawk, N. Y., obtained the average yield of 225 pounds of surplus honey to each colony. In one day, with the extractor and five hands, he extracted 2,700 pounds. D. A. Jones, of Canada, reports 32,000 pounds from 200 swarms, and an increase of 800 swarms. Aldeman & Roberts, of Florida, 12,000 pounds from 250 swarms, and an increase of 80 swarms. G. M. Doolittle, of New York, 4,000 pounds from 30 swarms, with 50 swarms increase. W. D. Wright, of New York, 14,000 pounds from 140 swarms, with an increase of 70. Hattie A. Heaton, New York, from 37 swarms, secured 54 new swarms, and nearly 4,000 pounds box honey. C. C. Poppleton, Iowa, from 108 swarms, 15,000 pounds. L. Lindsley, Louisiana, from 300 swarms, 27,500 pounds and 100 increase. W. L. Coggscholl, New York, from 108 swarms, 19,600 pounds, with 100 increase. To sum the whole matter up, it is estimated that there are nearly 3,000,000 swarms of bees in America, and reports from one-twelfth of that number, show the American honey crop of 1881 to amount to 120,000,000 pounds, worth over \$1,500,000.

Who can doubt the profits of bee-keeping, after reading such results? C. H. L.

Sunny Side Apiary, Baltimore, Md.

As the circulation of "The American Farmer" is enlarged the profit to each reader is increased by the wider field of experience on which to draw for the benefit of all. Will not each subscriber, therefore, see to it, that one new name is NOW added to our list?

The Manure Question in the Gunpowder Club.

D. Gorsuch, though the Club has discussed the manure question a number of times, is always learning something in regard to this indispensable auxiliary of the farmer, and getting more and more confirmed in his views heretofore expressed. He mostly begins his manure-making after harvest, when his yard has been scraped and cleaned, by hauling earth and grading. This puts his yard in proper shape. Then he commences piling in the middle, putting into the pile long and short manure. Believes in fermentation as a means of developing plant-food in manure. He wouldn't object if his manure fermented from now (November) until next harvest. Since he sold his cattle he has changed his time and mode of applying. Before, he used for wheat; it was heavy labor for men and horses, but paid best. Now he puts out for corn, and by preference on top. Last season was not a good one for surface-manuring. Some plowed down was attended with good results, perceptible at present in grain. What manure he has left from spring he puts out on wheat, hauling to the field in advance and locating in convenient piles. This year manure thus treated broke down beautifully—fell to pieces in handling from the cart.

Along with the altered notions of science in regard to the richness of manure, he has changed his own views. Formerly tenants in England were required to find oil-cake to enrich cattle excrement; now it is agreed that long manure, supplemented by good commercial fertilizer, produces results quite equal to, if not better than, those obtained otherwise. He is not sure land can be kept up by commercial fertilizers alone; it seems to him to require the mechanical action of decaying vegetable matter. It is plain that the use of commercial fertilizers has been of great benefit to the grain crops of Maryland, which have been doubled within the past twelve or fifteen years.

With the aid of commercial fertilizers manure can be used in a less fermented shape. Here Mr. G. had read a newspaper slip supporting his views. He continued: By this article he is reminded of one part of his experience he had forgotten, viz.: he increased his grass by surface-manuring, and when in the dairy business he scarcely ever failed of getting a set; has failed since. He likes to avail himself of every possible means of increasing his barnyard manure. That and commercial fertilizers go together.

Question.—Did you ever mix the two in one heap?

Answer.—No.

Ed. Scott.—How can one make enough? He can't get half.

D. G.—That's so. We must supplement with fertilizers.

Q.—What do you propose to do with the pile now in the yard?

A.—Put out in spring on top for corn.

Q.—Is there no loss in fermentation?

A.—Think not.

Q.—Do you use plaster on the piles?

A.—Yes; has all his life.

Q.—See any difference this year in results between manure plowed under and applied on the surface?

A.—On light soil surface-manuring was less efficient than that plowed under, but better on heavy land.

Col. Franklin's experience in the matter of making, saving and applying manure is small. He would ask Edwin Scott why it should not be the farmer's object to make enough manure? Manure made by feeding cattle heavily with grain is worth twice the same bulk of any other. He does not refer (in answer to a question) to manure made on a stock farm, but say on a 250-acre farm where cattle are bought in to feed in winter.

Ed. Scott.—Here farmers have an idea that it pays better to sell grain than to feed it to stock.

D. G.—It has occurred to him that the manure the dairy farmer makes is small in proportion to the amount of stuff he feeds.

Col. F. is satisfied that the results of manuring depend on the character of the manure. He knew of two adjoining farms, similar as to soil, on which different qualities of manures are used. There is a vast difference in results.

The discussion turned on the relative value of horse and cow manure, with diversified opinions.

John D. Matthews suggested that the milk business is a process of soil depletion. Several members assented.

D. G.—One principal ingredient milk removes is phosphoric acid.

An increased general average of wheat having been claimed as ascribable to the simultaneous use of manure and commercial fertilizers, the question was asked whether grass had likewise been benefitted by this conjunction of fertilizing elements.

D. G. answered that it probably had, at least among the Club membership. He would estimate the increase at a third, though doubtless, in addition to the causes recited, the stimulus of contact, association and comparison consequent upon organization had done much to promote a better system of farming in the Club.

Jos. Bosley had nothing new in the line of experience to relate. Always tries to make all the manure, and of the best sort, he can. Manure from the stables he keeps to itself and puts out on corn ground in the spring. Cornstalks, straw, and the balance of other manure not used in the spring he piles and allows to rot; this goes out for wheat. Sees great benefit from the application of it. He believes it would pay if we would save all and put on wheat; it affords better results both in grain and grass; is deterred from this plan by the time and labor its execution demands. Manure shows to better advantage on grass where applied on the surface.

Col. F. tried an application of manure with 150 pounds of Whitelock's Vegetator, and at the same time 300 pounds without manure; results largely in favor of manure and fertilizer.

John D. Matthews said D. G.'s views express his own fully in regard to the composition and application of manure. His plan has been to haul out and spread directly from the stable. The trouble of this method is to get manure on evenly. Used in this way as a top-dressing for wheat, it has not worked well with him; caused

too rank a growth of wheat and smothered out grass. Last year, however, was an exception. The growth of clover and timothy was excellent; poor where no manure had been applied. As the season was dry the manure may not have gotten down. He has always advocated surface-manuring; he plowed under this year as an experiment. Questioned in reference to his previous method, Mr. M. stated it had been to apply, if possible, three years beforehand, his object being to obtain a mass of roots; having which, one is in a position to grow whatever he may want to. To express myself more clearly, said Mr. M., for the benefit of a present crop I would apply manure fine; for the corn crop, partially rotted; otherwise if manure constituted no obstacle to mowing, he would apply all on new-set grass.

Question.—Why not let your manure rot and put out on wheat or rye? You are sure to get a crop of grass; in the other case there is a certain amount of waste. By applying manure in a rotted state it acts mechanically and absorbs fertilizing properties from the atmosphere.

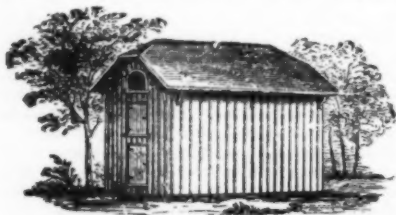
Answer.—Because by his method one can get over more ground and shade four times the amount of land. Thus applied manure acts as a retainer of valuable gases which would otherwise escape from the soil. It also serves the purpose of a mulch, rivaling the advantage sought to be secured in aftermath.

In regard to the question asked by L. M. B., as to who of the members favored plowing under (replied to by J. B. for and by A. C. S. against the policy), D. G. stated that manure plowed under for corn is lost except for that crop, but applied to wheat for grass this is not the case, but its beneficial effects endure for years; it continues to feed the soil. The results are not as marked on the wheat as on the following grass crop. It fills the soil with roots, which in turn become the nourishment of succeeding crops.

T. G.

Ice-Houses.

The secret of constructing ice-houses, in this climate at least, seems one of those things not governed by any rule yet discovered. Whether to build above or in the ground, to ventilate or not, whether the location should be in porous



or retentive soil, requires to be determined by actual trial on the spot. One thing seems settled: that the temporary structures recommended, and no doubt effective in more northern latitudes, often mere sheds, do not afford the protection necessary in our location. It is sometimes found

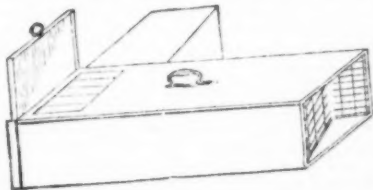
that a pit dug and lined with stone or logs, and with very little of a structure above ground, proves the best plan of preserving ice; but, as a rule, houses built on the surface, with double walls, lined throughout with saw-dust or the waste from engines, are more to be relied upon.

Such an one is shown in the cut. Much labor is saved in taking out the ice, whilst if not built too high it is no heavy task to fill it. In filling, the ice should be cut in blocks and piled as solidly as possible, and a layer or lining of saw-dust of four or five inches placed between the body of the ice and the inner walls of the house, and this should be filled in and pressed compactly as each layer is put in.

A double door, or two single ones, as shown in the construction of this house, makes it convenient for filling and for getting at the daily supplies when needed. A large ventilating window is also shown above the doors, with one in the opposite end, and whether to use them or to close them had better be a matter of experiment, advice on this point widely differing. When the supply for the winter is laid in, a good thick layer of saw-dust, or a still thicker one of straw, should be put over all, the holes or crevices between the layers and blocks of ice having previously been filled solidly. An ice-house ten by twelve feet and eight feet high will hold enough ice, counting a foot of saw-dust all around, for a family of medium size.

Weasel Trap.

This trap consists of an oblong box, the end of which draws out, and is provided with a looking-glass on the internal side, which attracts the vermin on looking in. The entrance to the trap is formed of two spring doors made of wire, which allow the vermin to enter with the least

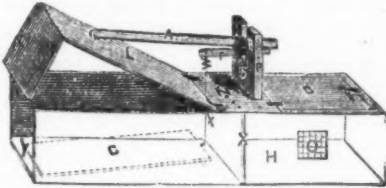


pressure. These doors have sharp points where they meet, which, although not felt by the vermin on entering, will prevent it from withdrawing after having once introduced its head. Near to the looking-glass a bait is suspended, and a cage is also fixed with a chicken to serve as a decoy. These traps are self-setting, simple, inexpensive, suited to all sizes of vermin, and safe for the house, farmyard or game preserve.

Mink Trap.

This trap should be three feet long, one foot wide and one foot high, outside measurement, and may be made of ordinary faced pine boards. N is the only solid part of the top, to which are hinged the lids, L and D, and also in which the

standard, S, is mortised. The lid, L, is held up by the rod, A, in which are one or more notches, to elevate it the desired height, catching or hooking over the pin, B, and projecting a few inches beyond. Under A, and hinged into the standard by the pin, P, is the lever, T, also projecting an inch or more beyond. C is a treadle-



board, hinged at G to the bottom of the trap, and connecting by the wire, W, to the lever, T, elevating it about two inches when set. H is the bait box, separated from the main trap by a wire screen, X X. O is a window, of which there should be one on each side about three or four inches square, also covered with wire or wire cloth, and D is the lid of the bait box, fastened down by the pin, E. The mink enters the trap, and as soon as his weight gets well up on the treadle it pulls down the lever, T, the projecting end of which dislodges the rod, A, and drops the lid, L. It is best to have a weight upon L, or else a catch to hold it down when sprung, as we have known an old mink to pry up the lid and get out. We have never known this trap to miss when set immediately succeeding the depredations of one of these vermin.

The Grange.

The National Grange.

The fifteenth annual session was held in Washington, D. C., beginning on Nov. 16th and closing on the 26th. On the first day the Master, J. J. Woodman, delivered his annual address, and the other officers submitted their reports. The Secretary, in his, announced that fifty-seven new Granges had been organized during the year ending September 30th, 1881, and thirteen dispensations had been issued since that date.

In the reports from the Masters of the several State Granges the following facts were elicited:

In Alabama, a great revival of interest, and the State is represented in the National Grange again after an absence of five years. Arkansas also was again represented. California reported an increase of members and increased business operations. Delaware is in good condition. In Illinois over 600 initiations have taken place in ten months. In Iowa the prospect is more favorable, and the Order is getting upon a sound basis. In Kansas the condition is flourishing. Kentucky has added considerably to her strength numerically, and has some good Grange stores. Maine has lost in numbers, but they were those who did not help. The co-operative organization is now self-sustaining. Maryland's gains will equal, if not exceed, her

losses during the year. Three new halls have been erected. In Massachusetts prospects are brighter and numbers increasing. In Minnesota unsatisfactory management of business enterprises has hindered progress, but steps are being taken to revive the work. Mississippi has, during the year, trebled her Granges and doubled her membership, and there are only two delinquent Granges in the State. In Missouri the Order is alive, at work, permanently established, and in healthy condition. New Hampshire shows some progress. New Jersey shows an advance. New York has had fourteen new Granges established during the year and as many more reorganized. North Carolina is progressing and new Granges are being organized, Ohio, during the year, has started six new, re-organized fifteen Granges, initiated 1,000 new members, and reinstated 500. Business efforts are generally successful. Pennsylvania reports progress made in co-operation and in a better understanding by the public. In South Carolina the great drought has hindered progress, but two new and ten revived Granges are reported. Tennessee is on rising ground; the membership is increasing and the stores on the Rochedale plan are a success. Texas has 224 Granges in good standing, a gain in a year of 101 (eight being new), a net gain in membership of over 4,000, and sixty successful co-operative associations. In Vermont the Order maintains its ground. Virginia shows a diminution in membership, the deputies who presented only the feature of financial saving having done much harm.

We can give only a brief summary of the proceedings. All the proposed Constitutional amendments were rejected, and the proposed change of sessions from annual to biennial was voted down. The following officers were chosen for the ensuing term of two years: M., J. J. Woodman, Minn.; O., P. Darden, Miss.; Lec., L. H. Eschbaugh, Mo.; St., Wm. Simms, Ks.; Asst. St., J. J. Rosa, Del.; Ch., Hy. O. Devries, Md.; Tr., F. M. McDowell, N. J.; Sec., W. M. Ireland, D. C.; G. K., J. V. Scott, Ark.; Flora, Mrs. P. Darden, Miss.; P., Mrs. E. M. Nicholson, N. J.; Ceres, Mrs. J. J. Woodman, Minn.; L. A. S., Mrs. Wm. Simms, Ky.

The Master's Address.

In the annual address of W. M. Woodman, after referring to the duties of the National Grange, which, he said, are creative as well as administrative, he commended to the representatives present the propriety of some matured system for the dissemination amongst the Order of the knowledge of the absolute necessity for an organization for the protection of agricultural interests; knowledge of the theories of the organization, of the principles we inculcate, of our system for practical work to accomplish our purposes; knowledge of what we have done and are doing to ameliorate their condition and elevate farmers as a class, and of the benefits and enjoyments to be derived from belonging to a well-disciplined and wisely-conducted Grange.

He reported great progress during the year in perfecting a lecture system, but that in many instances lecturers of both State and County Granges are seldom if ever found in the field,

and many subordinate Granges have never had a private or public lecture in the interest of the Order. To remedy this he recommends it should be made the duty of the Lecturer of a County or District Grange to visit every subordinate Grange at least once in each year, and oftener if the condition of the Granges requires it, and lecture to and instruct them. The office of Lecturer in a State Grange should be filled by one eminently qualified to deliver both public and private lectures upon topics relating to the interests of agriculture and the welfare of the Order. It should be made his duty to lecture within the State whenever called upon.

As to business co-operation, the W. M. said that though not the most essential and important feature of our organization, yet, taken in connection with the educational, it is an indispensable necessity; and so many experiments have been tried, losses sustained and successes achieved, that it seems only necessary to systematize and utilize the knowledge acquired to enable us to perfect a system of practical business co-operation adapted to the wants of our members. He commended the system of raising in subordinate Granges purchasing funds, which are invested in such articles as are constantly needed in every family and kept in a room provided at the Grange hall, and delivered to members at their regular meetings at near cost, as one both practical and safe; and the pecuniary benefits reaching to the humblest member, whilst educational in its teachings, bringing the pecuniary benefits of co-operation to the appreciation of all. He is clearly of the opinion that supply houses or arrangements for purchasing at wholesale rates, co-operative stores where they can be supported and well managed, arrangements for shipping and selling farm produce, and the Grange purchasing fund where needed, if properly systematized and encouraged, all working together, will constitute a system of co-operation well adapted to the wants of our members, and give to all both educational and financial benefits. But in no case should an agent be employed to create debts against the Grange, nor should the funds of the Grange be placed in the hands of an agent, or invested in business, without ample security for the return of every dollar to the Grange treasury.

W. M. Woodman reviewed the course of the bill in the United States House of Representatives providing for making the Commissioner of Agriculture a Cabinet officer and enlarging and sustaining his Department by appropriations commensurate with its importance; replied to the objections thereto, and urged the matter be pressed upon the next Congress, and that every effort be made to defeat every attempt to consolidate the Agricultural Department with the incorporated interests of the country.

Referring to the endeavor to secure legislation for the protection to innocent purchasers and users of patented articles, he said thousands of farmers and others are being prosecuted before the United States courts, and put to great inconvenience and cost, for innocently violating the patent laws by using some article claimed to have been patented. A law which will allow a patentee to abandon his invention to the public

and allow it to go into general use, and then permit him to collect royalty of every one who has ever used the article, is an outrage against justice and common sense.

Drive-well suits are being commenced all over the land, and innocent purchasers, who have paid full price for their wells, are compelled to go into the courts to defend their rights, or to be robbed under any pretext which the holders of the patent may claim. How long must these things continue? How long will the people's representatives ignore the prayers of those electing them, and neglect to provide statutory relief from these unjust burdens? Will farmers ever realize what the chairman of the Agricultural Committee in Congress has told them, that "they are strong in numbers, strong in material resources, and abundantly able to protect their own interests," independent of any "governmental aid or intervention?"

Considering the transportation question, the W. M. said the laws enacted in some States for regulating charges for transporting freight by railroad companies and for storing the same in elevators having been affirmed to be constitutional by the Supreme Court of the United States, which, after mature deliberation, established the doctrine that "*where private property is devoted to public use, it is subject to public regulation*," and that the power to regulate is with the legislative department of the Government, an appeal was made to Congress to "regulate commerce between the States," but no action has yet been taken, although there is every reason to believe that decided progress has been made during the past year in enlightening public sentiment upon this question, and arousing the people to understand the situation and to know what means are necessary to be put forth to bring about practical results.

As to the discussion of political questions in the subordinate Grange, he said the Order was never intended and cannot be made to serve the special interests of any political party; yet to prohibit the discussion of all questions relating to public policy would be to defeat some of the very objects of the organization. There are favors which we need and reforms which we seek which must be obtained, if at all, through the legislative department of the Government. This can only be reached either through the influence of public opinion, by petition, or the ballot box. We therefore claim the right to influence public opinion by the dissemination of documents, the circulation of journals devoted to our interests, and by public lectures.

We must discuss in the Grange all questions relating to the farm and household, and all questions pertaining to the great public welfare which are not strictly partisan in their nature. But when we come to political action and the ballot box, we say to our members: Work in the political parties to which you belong, "putting down bribery, corruption and trickery, and see that none but competent, faithful and honest men, who will unflinchingly stand by our industrial interests, are nominated for all positions of trust; and carry out the principle, which should always characterize every Patron, that *the office should seek the man, and not the man the*

office;" then exercise the elective privilege as your best judgment and enlightened wisdom may dictate.

Urging that no subject is more closely connected with the welfare of agriculture than that of education, W. M. Woodman suggests whether some practical measures cannot be devised for carrying out the recommendations of this body, made at its previous sessions, that "the elements of scientific agriculture be taught in our common schools."

The action of the National Grange in requiring the National Lecturer to prepare and send quarterly to the Masters of subordinate Granges and the Grange press a programme of literary exercises, social recreation, and a comprehensive list of topics suitable for discussion in Grange meetings, is reported as having been faithfully carried out by that officer; and all who have examined these documents cannot fail to be impressed with the good judgment, taste and ability exhibited in preparing and arranging the same.

The new departure of reports from Masters of State Granges has made some progress, and will no doubt accomplish good results.

As to the present condition of the Order the Master expressed his convictions, formed upon correspondence and personal inquiries and observation while among Patrons in several of the Western States, that as a whole the work of the Order is steadily moving onward, overcoming prejudices and winning the approbation and confidence not only of farmers but of all classes. Farmers who have hitherto withheld their influence from the Grange are beginning to realize the necessity of united action on the part of those engaged in agricultural pursuits, to prevent their interests from being wholly ruined by the over-reaching power of the monopolies which have been created by the legislation of the country, and are looking to this organization as the only medium through which such action can be consummated. In some of the States decided progress has been made, and the Order has become a power which can no longer be ignored.

After a reference to the assassination of President Garfield as a result of the spoils system in politics, the address closes with an appeal for harmonious and wise action.

MARYLAND STATE GRANGE.—The annual session will be held in the hall of the Young Men's Christian Association, corner of Charles and Saratoga streets, Baltimore, commencing at 2.30 P. M., Tuesday, December 13. Important matters are to be discussed, and it is desirable that every Grange in the State be represented. When the proper representative of a subordinate Grange cannot attend the meeting, such Grange may be represented by a Past Master and his wife, if a Matron. The State Grange will work in the Fourth Degree, and all Fourth Degree members are invited and requested to attend its sessions.

BALTIMORE COUNTY GRANGE.—The regular quarterly meeting will be held at the hall of Glencoe Grange, on Wednesday, December 7th, at 10.30 A. M.

Home Department.

Servants.

I have no desire to join in the hue-and-cry against servants as a class, nor do I consider them, even the freedmen and women who were so suddenly set adrift to shift for themselves, as being more than ordinarily depraved; indeed, I am disposed to look for the depravity among their employers. Making some allowance for individual character, we may set it down that servants are pretty much what we make them; not that the servants we may happen to have are always shaped just by the manner of our present dealing with them, but some one has made or marred them for us, and we are continually doing the same for some one else. It follows, therefore, that if we need any improvement in the class who serve us we had better begin by improving ourselves.

To go over this ground and make clear the truth of our own short-comings, and the causes that lead to them, would involve a candid consideration of the entire system of the average housekeeping; in order to do which, one would have to "write a book," and then who would read it? Some of us have too much to do to give the thought and personal supervision necessary to train servants properly, and many more are too indolent, and too easily satisfied to have some one do the work for them, to be very particular in regard to it. Both these demoralize all the servants they have to do with, and when "Mrs. Notable" gets hold of them she sets it down to innate good-for-nothingness on the part of the servants. Very few of us if thrown in that position with, we may safely suppose, intelligence and training superior to theirs, could possibly go from one house to another giving perfect satisfaction as to the manner of adapting ourselves to the situation, leaving out competency as to work, as we expect the most ignorant of servants to do. I confess it is a marvel to me how they do it at all; there is so little uniformity in the requirements or in the conveniences of different houses. Taking them as we find them, and ourselves without any definite system of government, we have continually to guard ourselves from unreasonable demands on the one hand and unwholesome forbearance on the other. Standing, as they usually do, on the defensive, they resent it and grow hard and sullen if they imagine we are trying to take any advantage, and are quick to see where they can secure any advantage to themselves. I have very reluctantly come to the conclusion that it is not only better for ourselves, but even to a greater degree for the servants, that we should deal very strictly with them, and leave all tendency to generosity for occasions when they really need it. Considering the measure of the understanding of the average servants among us we, can do nothing better to promote good morals and to get good service from them than to be very exact ourselves and exacting with them. Generous bargains clearly defined are all right and proper, and good care while under our protection is always their due; but if they are once made to understand that willful carelessness or neglect of

duty means also short pay, or that breakage must be replaced, and missing things be strictly accounted for, or that absence must be made up to us, we would find ourselves better served, and their habits and ideas of right and wrong greatly improved. If sickness or misfortune befall them our opportunity for generosity and kindly forbearance is open, but ordinarily if they are in good health, and we show any of that kind of "softness," they use it to give themselves a liberty which is sure to be injurious to them in the end; and their next mistress, who is simply just to herself and them, is thought to be a hard one.

It has taken me over thirty years' thorough experience with all shades of color and every different nationality the market affords to arrive at a conclusion that seemed to imply a want of sympathy with a class less favored by fortune than I; but at this late date I can trust my ripened judgment, and know that it is not hardness of heart nor unwillingness to do all in my power for the needy poor, which makes me see it in this light. Pampered and over-indulged servants are like children treated in the same manner; likewise is it with neglected servants; they need a keen but kindly oversight, which, although requiring time and patience, will no doubt relieve us in the long run from more arduous duties, besides giving the servants who have good qualities a feeling of greater security in their relations with us. It is as hard for them as for us if we take no heed when we are well or poorly served.

CERES.

Fussiness.

There is a class of housekeepers who are always in the suds. Somehow they seem to have a great deal more to do than others, who, appearing to do little, accomplish everything really worth accomplishing. These fussy housekeepers weary the life of all quiet-loving folks who are so unfortunate as to be in their neighborhood. Instead of sitting comfortably down and inquiring what is to be done, how it can be so done that it shall have a logical beginning, middle and end; what must be done, what may be left undone; what is urgent, and what can wait; they begin anywhere, everywhere, and "charge all along the line." Or what is almost as bad, they devote themselves to some trifling detail which might have been omitted altogether, and let all the rest of the household machinery drift into confusion.

The fussy housekeeper has specialties, and whims, and notions. Her plumage is always ruffled, her manner is always agitated, she is in a perpetual stew, and unfortunately never gets quite "done" till the last quiet sleep overtakes her. The worst of it is that these fussy folks always persuade themselves and try to persuade others that they are accomplishing a great deal by their fussiness, which is only true in that they make total destruction of all peace and comfort within the limits of their petty sovereignty. Now there is a great deal to be done in every household, however small, and it can be done, all of it, without any fuss at all. The whole operation of housecleaning can be gone through with by only disturbing one room at a

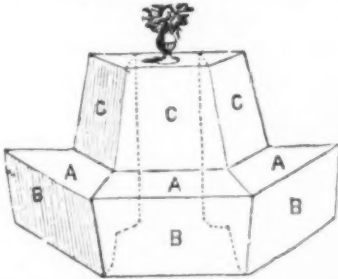
time, or two rooms at a time, while the rest of the house is kept in its usual order. There is no sense in tearing things to pieces unless one can at once put them to rights again, and when they are torn to pieces the thing to do is not to fret, nor to scold, but to set such agencies in operation as will restore order and wholeness again. It has always been observed that all the great agencies are noiseless. Sleep, death, heat, light, electricity, gravity: not a sound does either of these make as they all move on in their mighty missions through the earth. They come and they go, and we know naught of their coming or going save by the results they leave behind. Our most distinguished citizen is a silent man. He is known not by his words but by what he is and by what he has done. He has gone round the world raising a tidal wave all the way, but a child can count all the words he has spoken! The best housekeeper we ever saw never raised her voice above a whisper. When she spoke you had to listen to hear what she said. You could tell the seasons by looking at her house. The various preparations for spring, summer, autumn, winter, were made always in season, but so quietly that everything was done without the "stroke of a hammer." No parade was made about things left undone, and though she often had to wait for the accomplishment of her plans, there was no fuss made about the waiting, no attention called to it, and only she herself knew that everything was not as she wished. The secret of her success lay in the quietude of soul, the clearness of her intellect, and the patience of her disposition, and these could not fail to be impressed on all about her.

If the housekeeper would be a homekeeper as well, she must avoid fussiness. The home is infinitely more than the house, and there is such a thing as destroying the home by what is supposed to be the very perfection of housekeeping. The most immaculate of housekeepers are not always the most lovely of women, for they often tithe mint, anise, and cummin while they neglect the weightier matters of the law, justice and judgment and the love of God. In proportion as a woman is fussy is she inefficient. The efficient woman has an eye for the main chances and never sacrifices them to side issues. The fussy woman is forever pottering over non-essentials, and of course is forever behind hand with the essentials. Fussy people are usually afflicted with many words and have no appreciation at all of the maxim "Silence is golden," or of the proverb "A word fitly spoken is like apples of gold in pitchers of silver." Promptness, punctuality, serenity, are utterly incompatible with fussiness; and here we give as a hint to show how those who are disposed to overcome fussiness in themselves may do so. By being prompt in the performance of duty, ignoring and neglecting all side issues and going for the main chance. By cultivating punctuality, timing themselves by the clock and forcing themselves to be "ready on the dot" invariably. By keeping calm and cool and undisturbed in the midst of confusion, heat and irritation.

Our lady readers are reminded that their contributions to this department are solicited.

A Home-Made Ottoman or Divan.

This is a design of a half-hexagon ottoman for the end or side of a room between windows, so that three persons occupying it will receive the light upon their reading, sewing, etc. It may be covered with rich carpet, rep, chintz, Turkey red, or any stuff suiting the fancy or economy of the constructor, and, if neatly made, will add considerably to the appearance and comfort of parlor or sitting-room. It is constructed of three boards, A A A, shaped and joined; front boards, B B B, and pieces, C C C, all of which



are nailed to four upright supports shaped as in the figure, the dotted lines indicating the rear edges of the two which support the front angles. The fronts, B, may be perpendicular if preferred, but sloping will give a seat more agreeable. C is to be sloped at such an angle as best suits the back to rest against. Stuff the seat and back lightly, cover nicely, and you have an attractive and comfortable article at trifling labor and expense. To make the whole firm and steady, the part against the wall should be closed up. The column, C, will serve to stand a lamp upon, and may be made to extend high enough to prevent shadows from the heads of occupants of the seats upon their work. Casters can be added to each corner if desired.

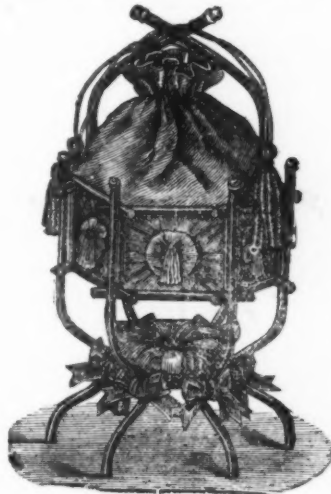
Lamps.

Every paper tells of accidents by using lamps improperly. Care should be taken to train the children in handling them, giving them to understand the extreme danger of carelessness in filling and caring for them. A lamp should be filled and trimmed every day if it is used for any length of time. The crust formed on the wick is apt to cause the chimney to break, besides giving a poor light. Then the vacuum left by using out the oil is liable to be filled with a gas that will explode. A child will snatch up a lamp quickly and hurry into another and colder room with a full blaze on; the consequence is a broken chimney or an explosion. Often one will wonder why the lamp gives a little sickly light, when the reason is that the wick is clogged. Take out the wick, wash it with soap and rinse well and see the improvement in light. Lamps will often loosen and come apart, and can be easily made as good as ever by using plaster of Paris. Clean the parts well with soap and water, then mix a little plaster with water to

the consistency of paste; put some in the orifice and quickly put the parts together, holding it in firmly; it will harden in a few hours. Care must be taken to mix and use quickly, as it hardens soon. It is not healthy to sleep in a room where a lamp is turned down. See that the lamps are always filled and cleaned in the morning, as it is so dangerous to be handling kerosene after dark. Where mutton tallow is so plentiful, it is the best to "run" a quantity for home use for the children to go about with.—*Willamette Farmer*.

Ladies' Work-Stand.

The skeleton of this stand is made of rattan. The squares between the rods should be covered with green plaited silk, which is drawn together and fastened with either a button or a small rosette and a flat tassel. The bag for the reception of embroidery or other fancy work is made



of green silk, drawn together by a green cord, at the end of which is a tassel of the same color. To hide the joints of the rod, a scarf of green ribbon is put at each junction. In the lower part of the stand is a pincushion, which is made in the same style as the filling-in of the squares above, and also drawn and held together with a button.

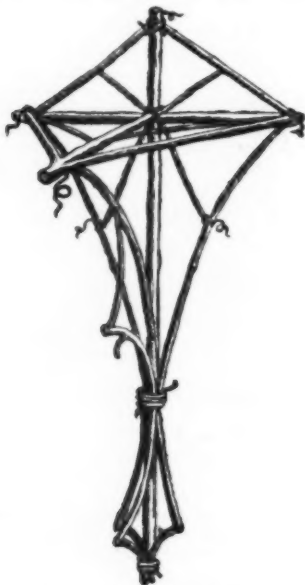
A Handy Sleeve-Protector.

If frequently happens that we housekeepers are called to take up some part of the work to which our dress at the time is not well adapted, nor do we wish to go to the trouble of changing it. Aprons, more or less wide-spread, are then our chief protection, and with such as are in these days in general use, covering not only the entire front of the dress from the chin to the toes, but "tied back" snugly in a way even cynics of the other sex will not attempt to ridicule, there is left nothing but the sleeves

exposed to the slightest danger of soiling. Even the sleeves are provided for by the inexhaustible genius of skillful needle-women, and patterns occasionally appear in some of the numerous publications devoted to such purposes, but few of us take the trouble to make them. Sometimes the make of the sleeve admits of its being turned back and caught with a pin at the shoulder, which not only keeps it out of harm's way, but if there is a pretty arm beneath, shows it very much more becomingly than a ball dress. It is simply ruinous to *show* a sleeve above the elbow; even a wash dress should not be subjected to such treatment. I have found, to meet this difficulty, that the tops of worn-out stockings cut off at the ankle are admirable protection. One may, thus equipped, dive into the flour barrel, pickle or preserve jars with impunity; even take the butter out of the churn without injury to even a very nice dress. CERES.

A Home-made Bracket.

The bracket shown in the accompanying sketch is easily made and quite ornamental.



This bracket is made of wild grapevine, the joints fastened with pins and bound with the tendrils of the vine, made pliable by soaking in hot water.

Domestic Receipts.

TO PREPARE MASHED POTATOES PROPERLY. Boil gently, after having made them as nearly uniform in size as possible, by dividing the larger ones, or what is better, by slicing all, but not very thinly. As soon as the fork goes through

readily, turn the water off (saving that for mixing your bread if you bake the same day), then mash through a collander into the same kettle or saucepan. Add butter and cream and salt, and with a long-handled spoon beat a few minutes briskly. Set the saucepan where it will thoroughly heat again and your potatoes will be a noticeable feature of the best of dinners. c.

TO KEEP THE BREATH SWEET, take a small piece of liquorice root in your mouth occasionally and chew it until the virtue is exhausted.

PUT A LUMP OF BORAX in your dish-water instead of soap; it is cheaper and nicer.

Delicacies for Convalescents.

Cooking for the sick must do half the work of digestion. Everything that is offered to an invalid must be done to perfection. If the dish is a failure it must not be served in the sick-room. And sometimes one's best efforts are failures from some cause impossible to prevent, leading one to believe more firmly than ever in the innate depravity of inanimate matter. Indeed, this is a doctrine that impresses itself with painful distinctness on the woman who sees her carefully-prepared custard separate into curds and whey at the moment when it ought to attain perfection; or the jelly that should stand proudly erect, clear as crystal, lying limp and muddy in its mould. Happy the patient that has a nurse that rises to the occasion and tries until she does succeed.

When fresh eggs are to be had they are a great resource. They can be prepared in so many different ways, and are usually liked and are eaten with relish. In dropping eggs it is sometimes difficult to preserve the form. Little wire strainers are sold for the purpose, which are very useful. When one is not at hand a small half-teaspoonful of vinegar added to the water helps to set the egg. The water must be boiling at the moment the egg is put in, and a square of hot buttered toast ready to receive it when it is taken out. A simple omelette is made with an egg beaten very light, a dessertspoonful of flour, the third of a cup of milk, and a little salt. Grated ham may be added if desired, or fresh parsley, shredded fine, or spice. The omelette is poured into a hot pan with a little butter melted in the bottom. It is unwise for an amateur cook to attempt to toss an omelette. When one side is nicely browned fold it over in the shape of a half-moon, and serve on a hot dish.

Egg vermicelli is prepared in the following manner, and is a nice breakfast dish: Boil two eggs hard; mince the whites, and add a pinch of salt. Heat two tablespoonfuls of milk, stir into it a piece of butter the size of an English walnut and half a teaspoonful of flour, previously moistened to a paste with cold milk. Add to this the whites of the eggs, and pour the mixture over two slices of toast. Sift over all through a strainer the two yolks.

It is asserted that gelatine contains absolutely no nutriment; so, however tempting the jelly made from it may look, it is practically useless.

except as a vehicle for wine or nourishing substances. A nourishing jelly is made from rice by boiling a quarter of a pound of rice flour with sufficient sugar to sweeten it, and a slice of lemon or other flavoring, with a quart of water, until the whole becomes a glutinous mass. The jelly is then strained into a mould. *Jaune mange* is a pleasant change from *blanc mange*, of which most convalescents have a surfeit in the earlier stages of their recovery. To make it, boil half an ounce of gelatine in a little more than half a pint of water, strain it and add the juice, with a small part of the grated rind of an orange, a tablespoonful of sherry, the yolks of two eggs beaten and strained, with sugar to taste. Stir it over a gentle fire until it just boils; then strain into a shape.

Lemon sponge is very light and delicate. Nothing that contains the whites of eggs must be looked upon as unimportant in an invalid's bill of fare. It is made with half a pint of water in which is dissolved half an ounce of gelatine and a quarter of a pound of sugar, with the juice of one large lemon or two small ones. The whites of two eggs beaten to a stiff froth are stirred in last. It must come scarcely to a boil and be put to cool in the dish in which it is to be served. Snow jelly has a refreshing sound in warm weather, when even a suggestion of coolness is grateful. To make it, take half of a small box of gelatine and soak it in half a pint of cold water; add one gill of boiling water, one cup of sugar, and the juice and grated peel of two small lemons. Put in a dish to cool, and when stiff add the whites of two eggs very lightly beaten, and beat the mixture well. Serve with a custard around it made with the yolks of the eggs and half a pint of milk. In summer it is advisable to make this dish the day before it is desired to use it.

The use of sago is not as general in this country as it is in England. If its merits were better known it would be more popular. Put a dessertspoonful of sago into three-quarters of a pint of cold milk, and simmer gently for an hour and a quarter, stirring frequently; skim it as it approaches boiling, and sweeten with a dessertspoonful of sugar. It may be flavored with nutmeg if the taste is liked.

Tapioca can boast more friends, and makes a delicious dish. Put a large tablespoonful to soak over night; boil a pint of new milk the next morning, sweeten it, add the tapioca and the yolks of two eggs well beaten; flavor with extract of vanilla, and put in a dish to cool. Then cover the top with the whites of the eggs beaten stiff, with a little sugar and vanilla, and place it in the oven to brown slightly.

A very nice pudding is made with two eggs, half a cup of sugar, half a tablespoonful of melted butter, half a cup of milk and one cup of flour. Mix the ingredients thoroughly, and beat the mixture very light. Bake half an hour, and serve with it any simple pudding sauce. Chocolate *blanc mange* and chocolate custard are exceedingly nice. Recipes for making them can be found in any good cookery book; so it is not worth while to repeat them here. One bit of advice in conclusion: Do not be disappointed if your efforts are received with an indifference

proportionate to the exertion they have cost you. Gratitude will come with returning strength, and the rapidity with which that is regained is the best tribute to your powers and earnest of your success.—*Christian Union*.

Look After the Sink Drain.

A water-tight sink, with a pipe to carry off the slops, adds much to the convenience of the kitchen, and saves the housekeeper much hard labor. But the convenience may be too dearly purchased if the slops are left on the surface of the earth, too near the dwelling, to multiply miasmatic germs, which are borne back upon the wind and enter the throats and lungs of the inmates of the household. A farmer's family is highly privileged in the enjoyment of pure air, but he may poison it by neglecting sanitary precautions, and a common neglect is in failing to take proper care of sink drainage.

Farmers have no sewers in the street to lead their sink drainage into, and they may be thankful that they have not, for they might then be as bad off as many city dwellers are, who frequently are conscious that the foul sewer gas is entering their house and bringing with it the seeds of death. There being no common drain for a rural neighborhood, every farmer should make one for himself, and that can very easily be done. If the surface descends in any direction from the dwelling it is very easy to dig a drain and lay a pipe that will carry the drainage to a proper distance from the dwelling. Such pipe should be laid deep enough to be below the reach of frost, and should extend several rods away from the dwelling. Just before reaching its terminus a stench-trap should be inserted to prevent the effluvia arising from the deposit flowing back into the kitchen. Our city pipe-makers have for such a purpose a curved pipe curving downwards, which curve will always be filled with water. As gas is lighter than water it cannot flow back from the place of deposit without passing downwards through the water in the curve; hence its return is prevented. Although this trap does not prove a perfect protection to our city dwellings, because the accumulated gas in sewers sometimes forces its way through the water, it would probably prove efficacious in a farm-house drain.

There are two ways in which the deposit of the sink-slops may be harmless. First, a well or pit may be dug and filled with small stones, and the upper three or four feet filled in with earth. The slops, emptying into the well, would sink through the stones to the bottom and there soak into the earth. Such an arrangement would insure to the family entire immunity from any miasmatic vapors which might be generated by the kitchen. Secondly, a cistern might be made to receive the slops, with sides and bottoms cemented, which could be kept filled with some kinds of absorbents, such as dried muck, mold, road dust, etc., which would deodorize the slops, fix their gases so that they might be utilized for manure. If a tight cover were kept upon the cistern, and the absorbents emptied and renewed twice a year, there would probably be no evil effects experienced from the drainage of the kitchen.

The American Farmer.

PUBLISHED ON THE 1ST OF EVERY MONTH
By SAM'L SANDS & SON,
 At No. 128 West Baltimore Street,
 (Sign of the Golden Plow),
 BALTIMORE, MD.

WM. B. SANDS, Proprietor.

SAMUEL SANDS, }
 WM. B. SANDS, } - Editors and Publishers.

SUBSCRIPTION:

\$1.50 a year, in advance. Clubs of five or more will be supplied at **\$1** each. Any person sending ten names and **\$10** will receive an extra copy free.

ADVERTISING RATES:

	1 Mo.	3 Mo.	6 Mo.	1 Year.
One Square, 10 lines.....	\$ 1.50	\$ 4.00	\$ 7.00	\$ 12.00
Quarter Page.....	6.00	15.00	22.50	35.00
Half Page.....	12.00	25.00	40.00	70.00
One Page.....	20.00	45.00	75.00	100.00

Cover Pages subject to special contract. Transient Advertisements payable in advance—all others quarterly. Advertisements should reach us by the 27th of the month, to secure insertion in the succeeding issue.

*. Subscribers who have minerals, ores, marls, fertilizing materials, or other substances, will be advised through our pages, by competent chemists, as to their composition, uses and value, by forwarding specimens to this office, *expressage or postage prepaid*. Questions as to application of chemical science to the practical arts will also be answered.

*. Persons desiring information or advice on diseases or injuries of domestic animals, will receive replies from a competent Veterinary surgeon, by giving a plain statement of the symptoms, &c.

*. Microscopical examinations will be made by an expert of fungous growths and other objects sent.

BALTIMORE, DECEMBER 1, 1881.

A Request.

We shall be glad to have our present subscribers, and those who make up clubs, forward their renewals and club lists as promptly as possible. This will facilitate the work of preparing the mail-books for the new volume, and otherwise be of great service to the publishers. Therefore oblige us by *renewing at once!*

Bound Volumes for 1881.

We will have a few complete sets of THE FARMER for 1881, strongly bound, which we can furnish at \$2.00, or \$2.30 sent by mail. We can also supply a limited number of earlier volumes of the current series at the same rates.

To Our Friends.

If THE AMERICAN FARMER merits the favor of those for whom it labors, by its age, its long continuance in well-doing for the cause of agriculture, its consistency, its devotion to principle, its abnegation of selfish aims, and its fidelity to the great interests of the farmer, NOW is the time when its friends who acknowledge its claims and appreciate what it has done to advance and develop agricultural progress may, by an effort for its continued and enlarged support, fortify its position, strengthen its hands, and increase its capacity of usefulness.

If each one will, in the next month or two, do his part to extend its circulation, we will go forward with the contemplated improvements encouraged by such evidences of appreciation and friendly co-operation from those who know its worth and works, that we shall be prepared to do more even than we have promised to widen its sphere of activity and helpfulness; and we call with confidence upon all such to give us at this time evidences of their sympathy and their active aid.

Prizes for Essays.

Reviving an old custom of THE AMERICAN FARMER as likely to add interest to our pages, to bring out the experiences and views of practical men, and to provoke a discussion on topics now of great, even vital importance to the agriculture of this section, we have determined to offer a series of prizes for the best essays on the subjects of present concern which are named below:

1. Mixed farming, including the keeping of live-stock, poultry and the dairy, and the producing of fruits for market, with recommendations as to the best rotations of crops for the Southern Atlantic States from Maryland to South Carolina.
2. The advantages of raising improved farm live-stock in the present state of agriculture in Maryland and States to the south—say Virginia, the Carolinas and Georgia.
3. The routine of successful trucking for the Baltimore and Northern markets, with suggestions on the cultivation, handling and shipment of leading crops of vegetables and small fruits, duplication of crops, and recommendations of varieties, manures used, etc.

4. Growing fruits as farm crops in Maryland and Virginia, with methods of cultivation and lists of approved sorts.

5. The system or crops best adapted to supersede in part the tobacco crop in lower Maryland, now as a rule so unprofitable.

It is expected that the essays shall be comprehensive in the scope and treatment of their topics; but it is not expected that they shall be exhaustive, since that would require a volume. The length of any essay should not exceed the space of four pages of the present size of THE FARMER.

For the essay in **each class** decided to be the best a prize of *twenty-five dollars* will be awarded.

Competent gentlemen will be invited to act as judges on the several classes, but they will not know the authors of the manuscripts they read.

The names of the writers are not to be attached to their essays. Each one will enclose his name and address in a sealed envelope on which is endorsed some motto, quotation or pseudonym, which shall also be affixed to his essay. The envelopes bearing the true names will not be opened until the decisions are made by the judges.

The right is reserved to publish in THE AMERICAN FARMER any or all of the essays contributed which do not receive a prize, but in every such case we will forward to the author *ten dollars* as a remuneration, in part, of his time and labor expended.

The essays should reach the publishers by February 10, 1882.

Notice.—A well-known breeder of this State, who desires his name withheld, learning of our intention to present these prizes, advises us of his wish to add to that offered for No. 2, A PAIR OF BERKSHIRE PIGS, which (he says) THE AMERICAN FARMER will not be ashamed of.

DR. BARTON'S PAPER.—No one should be deterred from reading this by its length. The present issue being the last of THE FARMER in its present form, the article could not well be divided, even had the subject admitted of it. The topic is a very interesting one, and is treated with ability and learning.

"The American Farmer" for 1882.

Change of Form and Time of Publication.

From the beginning of the new volume, January 1st, we shall publish THE AMERICAN FARMER as a semi-monthly, the date of issue being about the 1st and 15th of each month. Its form will be changed to a broad quarto of from twelve to sixteen pages, each of four columns, and every number will contain an average of as much reading matter as is given in the present monthly editions. Our subscribers will thus not only receive twice as frequent issues, with the corresponding opportunities of more quickly acquiring the agricultural information they contain, but they will also have the advantage of nearly double the quantity of reading which is now afforded in the existing shape.

We expect to make this change redound in many ways to the benefit of our readers. The increased space at our command will admit of a larger variety of subjects being treated, and of such as deserve it being discussed at a greater length. Some new features will be incorporated, and the publication will be in every way kept up to the high standard of efficiency and usefulness which has marked its conduct for so many years.

Every department of THE FARMER will, as heretofore, be under the direct charge of a competent and practical worker in that particular field, who were announced in our November issue, and whose experience and observation in his or her specialty constitute exceptional qualifications for the work.

THE FARMER will be printed on fine white paper, in clear type, set somewhat more open than heretofore, which will be acceptable, as we think to our readers; and such subjects as require illustration will be accompanied by engravings, which will not, however, be inserted merely to fill up space.

Premiums for Subscriptions to "The American Farmer."

The offer of premiums in our November edition, except to those subscribers who have already availed of it, is withdrawn, being replaced by the more extended and varied one contained in our enlarged Premium List, sent as a supplement to this issue, and extra copies of which will be forwarded to all desiring them on application.

The giving of premiums of this kind is a new departure with us, but the desirability of largely expanding our circulation for the coming year,

and the desire on our part to make some adequate return to those persons who will interest themselves in securing subscribers for THE FARMER, has led us to the selection of the articles which are enumerated and described in the list. All of these premiums are valuable, many are extremely useful, and all are well worth the prices affixed to them.

We have been at considerable pains in making the selection of these premiums. All of them are of such a character as cannot fail to give satisfaction to the recipient, and we are sure none of those who know us will have any hesitation in accepting our statements as to their coming fully up to the descriptions given.

Please Take Notice—There is something to please every taste, whether masculine or feminine. These premium offers are open to all. There is no competition, as between the getters-up of rival lists. Each person who secures a club knows exactly what he is trying for, and how many subscriptions will bring it. Each article in the list is offered on definite terms, and should all who are collecting names settle upon one premium, the supply is abundant to satisfy every one.

We ask every present reader to exert himself or herself, either to secure one or more of the varied premiums we here offer, or to interest some one in the vicinity who will do it. A few words of commendation of THE FARMER to friends or neighbors (such as we honestly think it deserves) and their subscriptions are readily secured; and this being repeated, as opportunity serves, leads to the accumulation of such lists as will easily obtain the best and most costly premiums proposed to be given. Others not so expensive may be secured by even less endeavor.

As a mutual thing, whereby our readers, ourselves, and the club-raisers will be benefitted, we urge that every one of our present subscribers shall feel individually called upon to promote the enlarged circulation of THE FARMER for 1882, either by personal exertion or by securing the active efforts of some other person adapted to the work.

Special attention is called to some of the premiums offered, which by their usefulness are especially worthy of being secured, and all of which can be readily gained by some slight exertion by any active and wide-awake person.

The Improved Waterbury Watch, No. 1, merits being in the hands of every one. It is, of course, a cheap watch, but

is so constructed by the aid of perfect machinery that it will prove a convenient, useful, and reliable companion on the farm, the road, or in the house. It is a good thing for the boys; looks well, acts well and wears well, as considerable testimony furnished us shows.

The Clocks, Nos. 2, 3, are pretty and useful articles, easily secured, and will prove a source of pleasure and convenience wherever placed.

The Plants, Nos. 10, 11, 12, will give a start to any one who wishes to enjoy the best strawberries and raspberries, and at the cost of a few moments' work. No. 14 offers the most beautiful ornamental flowering plants lately introduced, with which to adorn the yard or garden.

The Jewelry and Watches, Nos. 15 to 25 and 41 to 45, may be relied upon as exactly what they are represented to be, and are from the stock of a house of the best reputation.

The Silver-Plated Ware, Nos. 26 to 40. These are standard goods. The liberal basis on which we offer them will enable many a good housewife to equip her table with some of the beautiful, useful and serviceable pieces included in the list.

The Breech-Loading Guns, Nos. 45, 46. These are the products of the Remington factory, than which there can be none better. No. 45 is adapted for youths, though a good enough gun for anybody; whilst No. 46 is such a gun as any sportsman may covet and be proud of when acquired. The terms on which we present these guns put them within the reach of any energetic young man who will give some time to canvassing for subscribers to THE FARMER.

Gossamer Rubber Goods, Nos. 47 to 57. These articles are useful, indeed almost indispensable for health and comfort. Should be possessed by everybody, and are peculiarly desirable for all who live in the country. The goods we offer are not trashy, inferior articles, but the best grades made. No one not already possessing the garments should hesitate to make the slight exertion required to obtain them.

Obituary.

We regret to record the death of Joseph Barlow, of Howard county, Maryland, a prominent farmer and Chaplain of the State Grange, a man of the highest probity, esteemed and beloved by

all who knew him. Mr. Barlow was engaged in trade in Baltimore in earlier life, but, withdrawing from business, carried into the pursuit of agriculture habits of promptness, order and punctuality which insured success. He was a warm friend of the *American Farmer*, and for many years we have been indebted to him annually for handsome clubs of subscribers.

Mr. John Merryman, well known to the agricultural community, died at his residence in Baltimore County on November 15th. He was for several years President of the Maryland Agricultural and Mechanical Association, as he had been, before the war, of the Maryland State Agricultural Society, and he was also elected a year or two ago President of the United States Agricultural Society, which it was proposed to revive. Mr. Merryman was widely known as a breeder of Hereford cattle, he having introduced them into this State some thirty years ago. He farmed quite an extensive estate, and was besides largely engaged in the fertilizer business in this city.

The American Veterinary College.

This institution, the only one of its kind in this country, is doing most excellent work in a line which deserves the highest commendation, and to any young men who think of entering a profession which opens a wide field for honorable exertion, we commend it as offering superior facilities for acquiring a suitable education therefor.

Little's Sheep Dip.

On any farm this fluid is invaluable, it being effective for the cure of diseases and insect parasites of horses, cattle, sheep and poultry, and without the disadvantages which accompany many other preparations made of tobacco, sulphur, etc. It is very concentrated, and yet easily applied. The testimonials which have been exhibited to us by Mr. Lawford, from practical and unprejudiced farmers and stock-raisers who have tried it, convince us that the estimate we have heretofore given of its worth is not too high, and we advise our readers to provide themselves with a supply of it, as a protection to their farm animals against many of the ills to which they are subject in the inclement winter season. It is claimed, after wide experience, to be a specific for scab in sheep, and not the least of its recommendations is that it may be used cold, and safely applied in winter.

Books Received.

"THE NATIONAL REGISTER OF NORMAN HORSES." Vol. I.—This work is the production of the National Norman Horse Association, composed of the leading importers and breeders of Norman horses in America, and its object is to register "all full-blooded French draft horses whether such animals be of Augeron, of Breton, of Boulonnais, of Cauchois, of Percheron, or of any other local origin." The present volume includes 882 stallions and 164 mares. The typography is very creditable to the Pantagraph Printing establishment, at Bloomington, Ill., by whom the work was done.

"FARMING FOR BOYS." By the author of "Ten Acres Enough." From the publishers, D. Lathrop & Co., Boston.—The attractive style of this story may, and probably will, be effective in stimulating system, energy and neatness in farm work, and which can do no harm, though its pictures of what is possible therein be highly colored. One of the young "American farmers" to whom we submitted it went through it at one or two sittings, and announced his expectation of "reading it through six times more," which indicates its adaptation to the taste of those for whom intended.

"CONTAGIOUS DISEASES OF DOMESTIC ANIMALS."—From the Department of Agriculture.

Answers to Veterinary Inquiries.

The only advice I can give to the gentleman who owns the horse that is subject to *epilepsy* is to dispose of him as soon as possible, as it is a very dangerous and almost incurable disease. To ameliorate the symptoms, the horse should be fed with light and easily digested food, given in small quantities at one time, and ten drops of the tincture of nux vomica dropped on the tongue three times a day.

Regarding the treatment of the disease termed "*pink-eye*," of course the symptoms vary in different cases, but I will give some general directions which will be found serviceable. The horse should be placed in a well ventilated stall, but not where he is exposed to any draughts. Warmly clothe the body, and bandage the legs loosely with flannel bandages. Feed only on mill feed with a little cut hay during the sickness—no grain or long hay. Give one of the following powders on the tongue twice a day:

Nitrate of potash, 1 oz.; pulv. gentian, $\frac{1}{2}$ oz., and 30 drops of the following medicine in the water four times a day: Tincture nux vomica, 4 drachms; tincture belladonna, 3 drachms; tincture aconite root, 1 drachm.

R. P. LORD, M. R. C. V. S.

156 Pennsylvania Ave., Baltimore.

Baltimore Markets—November 30.

Breadstuffs.—*Flour.*—Quiet, with prices about steady. We quote as follows: Howard Street Super \$4.25 @5.00; do Extra 5.25@6.25; do Family 6.50@7.25; Western Super 4.25@5.00; do Extra 5.25@6.25; do Family 6.50@7.25; City Mills Super 4.50@5.25; do Extra 5.50@6.25; do Rio brands Extra 7.25 @ 7.37; Winter Wheat Patent Family 7.00@8.00; Patap co Family 8.00; Fine 4.00 @4.25; Fancy Brands 7.75@8.25; Fine 4.00@4.25; Rye Flour 5.75@6.25; Baltimore Pearl Hominy 4.75; Grits 5.00; Corn Flour 5.00.

Wheat.—The market was firm in tone, and after a moderate business closed at the outside figures for all deals. We quote: November \$1.34½; December 1.34½; January 1.34½@1.38½; February 1.41½@1.42; Southern Fultz 1.30@1.35; Southern Long Berry 1.40@1.45.

Corn.—Fairly active and firmer in tone. We quote: Cash 66½; December 66½@66¾; January 69; February 71@71½; Southern White 66@67; Southern Yellow 68.

Oats.—The demand is good and the market is steady to firm with a fair supply. Western mixed 48@50; do bright 51@52; do white 52; Pennsylvania 49@5; Southern 50@53.

Rye.—Dull at \$1.01 for good, and prime is quoted nominally at \$1.03@1.05.

Mill Feed.—Western is quoted \$18@20 per ton for Bran and \$21@22 for Middlings, and City at \$24.

Hay and Straw.—Hay is easy. Straw is fairly active and steady. We quote: Cecil Co. Timothy \$23@25; Pennsylvania \$19@22; Western \$18@20 for large and \$19@21 for small bales; mixed \$17@18; and Clover \$15@17 per ton. Straw is quoted at \$9@11 for wheat, \$11 @12 for oat, \$16@18 for long rye, and \$14 for short do.

Seeds.—Prime to choice Clover is quoted at 8@9 cts. per lb. for car lots and 9@9½ cents for jobbing. Common is dull and sells as low as 7 cts. Timothy is quiet and nominal at \$2.75@3.00 per bushel.

Provisions.—We quote packed lots as follows: Bulk Shoulders, packed, 8½ cts.; do L. C. Sides do 9½ cts.; C. R. Sides do 9½ cts.; Bacon Shoulders do 9½ cts.; do C. R. Sides do 11 cts.; do Hams, sugar-cured, new 13@13½ cts.; do Shoulders do 9½ cts.; do Breasts do 11½ cts.; Lard, refined, tierces 12½ cts.; Mess Pork, per bbl., \$18.

Dressed Hogs.—The market is fairly steady with a fair demand at \$7.00@7.25 per 100 lbs., the latter for the better class of jobbing lots.

Butter.—Active and firm. Medium and lower grades are dull and nominal. We quote New York State, new, choice, 32@34 cts.; Creamery, fancy, 45 cts.; do prime to choice, 40@43 cts.; N. W. dairy-packed, choice, 26@28 cts.; Western, choice, 25@28 cts.; do good to prime, 20@23 cts.; do Roll, choice, 26@28 cts.; do do fair to good, 22 @25 cts.; do do common, 18@20 cts.; Near-by receipts, 26 @29 cts.

Cotton.—Dull but firm. We quote Middling 11½@11¾ cts.; strict Low Middling 11½ @ 11¾ cts.; Low Middling 11½@11¾ cts.; strict Good Ordinary 10½ cts.; Good Ordinary 10½ cts.

Tobacco.—Very quiet. Sales confined to small lots taken for the various open markets. Holders continue firm, and we quote as follows: Maryland inferior and frosted at \$2.00@3.50. do sound common 4.00@5.00, do good common 5.00@6.00. do middling 6.50@8.00, do good and fine red 8.50@10.00, do fancy 10.00@14.00, upper country 4.00@16, do ground leaf 3.00@8.00, Ohio inferior to good common 3.00@4.00, do greenish and brown 4.00@6.00, do medium to fine red 6.00@8.00, do common spangled 5.00@7.00, do fine spangled and yellow 8.00 @15.00, do sir-cured medium to fine 6.00@12.00.

Live Stock.—*Beef Cattle.*—The market was fairly active for better grades. We quote very best on sale this week 5½@5¾ cts.; that generally rated first quality 4½@5½ cts.; medium or good fair quality 3½@4¾ cts.; ordinary thin steers, oxen and cows 2½@3 cts.; extreme range of prices 2¼@5½ cts.; most of the sales were from 3@5 cts. *Milk Cows.*—There is a good retail demand for prime cows at \$50@75 per head, and no quotations for common cows. *Hogs.*—Trade has been fair to moderate, with a supply equal to the demand. Quotations 7½@8½ cts., with but few sold at the former figure. *Sheep.*—The market has been quite dull this week, the butcher demand has been quite limited. We quote butcher sheep at 3½@5 cts., with an extra choice lot from Virginia at \$5.00 per 200 lbs.; stock sheep are also dull; ewes \$1.50 @3.25 per head, and wethers 3¼@4¾ cts.

Contents of December Number.

The Distribution of Plant-Life, and the Agencies Contributing to It, by Dr. Bolling W. Barton.....	391
Our French Letter, by F. C.....	399
Will Sheep Pay?.....	400
The "Enterprise" Club, by N. E. D.....	401
Reading Farmers, by R. S. Cole.....	403
Choice of Seed in Cotton Growing.....	403
The Application of Farm-Yard Dung.....	404
Waste of Land in Fences.....	404
The Profits of Farming.....	405
Planting Forest Trees.....	405
Recent Purchases and Sales of Jerseys.....	405
The Prize Jerseys Again, by X.....	405
What Kinds of Horses to Raise.....	406
Good Advice to Sellers of Beef Cattle.....	407
The Fat-Stock Show at Chicago.....	407
Working Bulls.....	407
Bitter Milk.....	408
Proportion of Milk to Butter.....	408
Sales of Herefords.....	408
Poultry Enemies, by G. O. Brown.....	408
The Maryland Poultry Club.....	408
Pleasure Grounds and Greenhouse.—December, 1881, by W. D. Brackenridge.....	408
Orchard and Fruit Garden.—December.....	410
Barreling Apples.....	410
Vegetable Garden.—December, by J. Watson.....	411
Bee Notes for December, by C. H. L.....	412
The Manure Question in the Gunpowder Club, by T. G.....	413
Ice-Houses.....	414
Weasel Trap.....	414
Mink Trap.....	414
The National Grange.....	415
Servants, by "Ceres".....	417
Fussiness.....	418
A Home-made Ottoman or Divan.....	419
Lamps.....	419
Ladies' Work-Stand.....	419
A Handy Sleeve-Protector, by "Ceres".....	419
A Home-made Bracket.....	420
Domestic Receipts.....	420
Delicacies for Convalescents.....	420
Look After the Sink Drain.....	421
A Request.....	422
Bound Volumes for 1881.....	422
To Our Friends.....	422
Prizes for Essays.....	422
THE AMERICAN FARMER for 1882.....	423
Premiums for Subscriptions to THE AMERICAN FARMER.....	423
Obituary.....	424
The American Veterinary College.....	425

WOMEN ARE EVERYWHERE USING and recommending Parker's Ginger Tonic, because they have learned from experience that it speedily overcomes despondency, indigestion, pain or weakness in the back and kidneys, and other troubles peculiar to the sex.—*Home Journal.* See adv.

AN AGREEABLE DRESSING FOR THE HAIR, that will stop its falling, has been long sought for. Parker's Hair Balsam, distinguished for its purity, fully supplies this want.

Index to Vol. X, New Series, 1881.

A.	Page.	C.	Page.
Address of Hon. Sam'l J. Randall.....	323	Cabbage, Cultivation of Late, by A. Rider, 105; The Crop of, by R. S. Cole.....	377
Agricultural Science—its Position and Pros- pects in America, by Dr. M. G. Ellzey....	193	Calves, Raising, by Hand.....	333
American Agricultural Newspapers.....	207	Canker in Fowls.....	139
American Competition with British Agri- culture.....	271	Carbolic Acid for Insects.....	379
American Farmer, Compliments to.....	153, 254, 321, 389	Cattle—Soiling, by Judge Wm. Fullerton, 8; Guernseys for Maryland, 13; Jerseys for Baltimore County, 13, 238; Consump- tion in, or Tuberculosis, by Dr. Lemay, 13, 55; Choking in, 14; Shorthorns, 170; Herefords, Sales of, 226, 408; Breeding Butter-Producers, by X., 238; Shorthorns and Jerseys in England, 260; Death of "Jersey Belle" of Scituate, 290; Sales of Shorthorns, etc., 291, 334; Polled or Horn- less.....	354
American Pomological Society.....	177	Celery, Growing, by C. E. Sanford, 71; Easy Blanching of.....	381
Anne Arundel County, Md., by H.....	86	Cherry, "Louis Phillipe," with cut.....	141
Ants as Fruit-Growers' Friends.....	330	Choice of Cotton Seed.....	403
Apples, Barreling, with cut.....	410	Cider for Bottling.....	349
Southern Winter, by H. A. C., 140;		Clover, Treatment of, to Derive Greatest Benefit from, 6; by Deer Creek Club, 357; Barnyard Manure and, the Great Fertiliz- ers, 202; Summer Sown, 270; at the South.....	270
Apples for Maryland, by J. N. Shauck.....	178	Clover Seed, Sowing.....	61, 167
Apricot, The, by John Saul.....	96	Colic in Horses.....	200
Aquarium, An, with cut.....	106	Colts, Pare the Toes of.....	240
Ashes and Hen Manure for Corn.....	153	Commissioner of Agriculture, United States.....	226
Asparagus Beetle, with cut.....	106	Co-operation, by J. D. Thorne.....	228
Avenel Farm, Md., by W. E. Manakee....	295	Corn and Corn Culture, 107, 151, 157, 181; Early Corn, by R. Vincent, Jr., 146; How can we Raise the Largest Yield with Profit? by the Gunpowder Club.....	120
B.		Corn vs. Cotton—Farming vs. Cotton-Plant- ing.....	296
Bacteria and their Relations to Plant Cul- ture.....	343	Corn Crib, A Western, with cut.....	238
Bag Holders, with cut.....	53	Cottage, Country, with cuts.....	52
Baltimore County Fair, 259, 289, 320, 351; Premiums at, 346; Ladies' Work at, by H. E. C.....	347	Cotton Exposition at Atlanta....	152, 259, 289
Barn, with Basement, with cuts, 89; A Con- venient, by Dr. F. Thomas, with cut.....	160	Cow, A Profitable.....	224
Barnyard Manure and Clover the Great Fer- tilizers, by Thos. Maddox.....	202	Cows, when Kept at a Profit.....	370
Barley, Culture of.....	107	Creamers and Butter-Makers, by H. C. Hal- lowell, 257; by J. A. C.....	275
Bee-Keeping.—Requisites of Success, 58; Transferring, 95; and Bee-Hives, by J. L. L., 139; Artificial Foundation, 140; Sur- plus Honey and how to Obtain it, with cuts.....	176	Crops and Seasons in Va., by J. W. Ware.. Crow, What shall we Do with the, by R. S. Cole.....	235
Bee Notes, by C. H. Lake.—Feb., 76; March, 108; April, 140; May, 175; June, 211; July, 249, Aug., 276; Sept., 309; Oct., 338; Dec.....	412	Culture, Possibilities of, by W. H. White... Cut-Worms—Natural History, etc.....	50 378
Beef Cattle, Advice to Sellers of.....	407	D.	
Beetle, The Blister, 136, 180; Asparagus... Beef-Raising in Maryland, by A. M. Stabler Berkshires, Mr. Fulford's, with cut, by X., 302; Prizes won by.....	106 228 336, 367	Dairy, The.—Winter-Feeding in, 17; A Milk and Cream Cabinet, with cut, 54; Making Good Butter, by J. A. Conkling, 89; En- silage and Butter, by S., 171; The Dairy Cow, 172; Regularity in Butter-Making, 172; Wonderful Record of a Holstein Cow, 173; A Milk and Butter Test, by C. E. Hand, 241, 290; Keeping Butter, 241; A	
Bone-Dust for Lawns.....	291		
Books Received....	36, 188, 191, 260, 389, 425		
Book-keeping, Farm.....	40		
Book-farming.....	211		
Brackenridge, William D., Sketch and Por- trait of.....	119		
Breeding from Cross-bred Animals.....	159		
Breeding Pens, Cheap and Convenient.....	135		
Broom Corn.....	213		
Buggy, Care of the.....	338		
Bulls, Working.....	407		
Butter, Gilt-Edged.....	308, 369		
Butter-Producers, Breeding, by X.....	238, 303		

- Fine Herd of Guernseys—the Milk Supply of Cities, by X., 275; Creamers and Butter-Makers, by H. C. Hallowell, 257; by J. A. C., 275; Feed Dairy Cows Liberally, 307; Economical Rations, 307; Gilt-Edged Butter, 308; Heifers for Milk, 331; Butter Families among Jerseys, 331; Milking Machines, 332; Raising Calves by Hand, 332; How to Make Good Butter, 369; When Cows may be Kept at a Profit, 370; Don't Let Cows Go Dry..... 371
- Deer Creek Club, Proceedings of..... 7, 53, 123, 157, 203, 236, 264, 298, 326, 357, 400
- Delphiniums, with cut..... 217
- Deutzia, "Pride of Rochester," with cut..... 217
- Distemper or Influenza in Horses..... 201
- Distribution of Plant-Life and the Agencies Contributing to It, by Dr. B. W. Barton.. 301
- E.**
- Education, A Farmer's, by Dr. J. T. Councilman..... 232
- Elevator for Water-borne Grain..... 34
- Ensilage, by N. W. Pierson, 3; by H., 54; in Virginia, by S., 88; by A. Chandlee, 92; by R. Roberts, 109; by H. C. Jenkins, 161; and Butter, by S., 171; by Chas. K. Harrison, 197; by F. Guy..... 295
- Enterprise Farmers' Club..... 401
- Entomologist, U. S., Appointment of..... 290
- Evergreen Gateways, with cuts..... 179
- Evergreens, Notes on, by W. Fraser, 64; Two Fine Ones, with cuts..... 374
- Exchange, Chemical Fertilizer..... 116
- Exports, Our Agricultural..... 134
- F.**
- Fairs.—State and District, 291; of Baltimore Co., 259, 289, 320, 351; of Harford and Cecil Cos..... 385
- Farmers' Associations, Meetings, etc.—U. S. Agricultural Society, 35, 79; Am. Agl. Association, 35, 79, 105; Convention of Montgomery Co., 35, 79, 105; Convention of Baltimore Co., 227; American Dairymen's, 54; Norfolk (Va.) Horticultural Society, 98; Societies in Montgomery, Cecil, Harford, Frederick, Baltimore, Washington, Carroll Cos., 110; St. Michaels, 110; Kent Co., 160; Deer Creek Club, 7, 53, 123, 157, 203, 236, 264, 298, 326, 357, 400; Gunpowder Club, 5, 120, 181, 203, 319, 413; Enterprise Club..... 401
- Farmers' Clubs, Value of..... 269, 330
- Farmers, A Word to Young, by L., 88; Reading, by R. S. Cole..... 402
- Farming—Does It Pay? 270; How to Make It Pay, 326; Changes in, by Philo..... 2
- Fat Stock Shows at Chicago..... 15, 170, 407
- Fencing, Economy in, 101; Barbed Wire, by N. F. F., 310; Waste of Land in..... 404
- Fertilization, Problems of, by A. P. S., 129; by B..... 163
- Fertilizers, Phosphates in, 206; Fertilizers and the Wheat Crop, by Wm. Holman..... 293
- Fish, Cultivation of, by Deer Creek Club... 7
- Flax Culture, by T. L. Henley..... 450
- Floral Novelties, by W. G. Ivy..... 102
- Flowering Plants, by Mrs. Bristol, 314; Care of..... 373
- Flowers.—For the Beginner, by W. G. Ivy, 25, 67; Pitcher Plants, with cuts, 26; Heliotropes for Winter Blooms, by W. F. Massey, 100; Chapter on Lilies, 101; Novelties, 102; Geraniums for Bedding Out, by N. F. F., 144; for the Table, 340; Wintering Geraniums, 373; Phlox Drummondii, 373; Hibiscus, 374; Pentstemon..... 376
- Food, Adulterations of, by G. T. Angel.... 190
- France, Letters from... 91, 127, 164, 205, 233, 267, 300, 329, 359, 399
- Frost, Action of, on Plants, by Wm. Saunders..... 83
- Fruits.—Raspberry Cultivation of, 20; Quince Culture, 21, 63; Grapes, 22; Production of New Fruits from Seed, by M. P. Wilder, 81; The Apricot, by Jno. Saul, 96; New Fruits, by Jno. Cook, 97; Grapes for Middle and Southern States, 97; Two Good Plums, 98; "Louis Philippe" Cherry, with cut, 141; Southern Winter Apples, with cut, 142; Autumn Pears, with cuts, 143; Apples for Maryland, 178; Winter Killed, by J. Fitz, 243; Strawberries, 279; for Light and Heavy Soils, 312; on Eastern Shore, 310; Preserving Grapes for Winter, 312; Inducing Regular Bear-
- G.**
- Garden Notes, by W. F. Massey, 276; by N. F. F..... 310
- Garfield, President, Death of..... 350
- Geraniums for Bedding Out, by N. F. F., 144; Wintering..... 373
- Glass, Use of, in Gardening for Market, by W. F. Massey..... 314, 342, 376
- Grain, When to Feed, to Horses..... 354
- Grain Products of U. S., Increase of, 362; Maryland's Census Statistics of..... 363
- Grapes, Some of the Newer, by G. F. Needham, 22, 143; for Middle and Southern States, 97; Cultivation of, with cuts, 213; Preserving for Winter..... 312
- Grass as a Crop, by A. P. Rowe..... 125
- Grasses, Clovers, etc.—Orchard, 61; Orchard and Rye, 268; Timothy, 280; Mixtures of Seeds for Various Soils..... 353
- Green Manures..... 323
- Greenhouse, A Cheap..... 23
- Greenhouse Work, by W. D. Brackenridge.—Jan., 22; Feb., 66; March, 100; April, 144; June, 212; July, 246; Sept., 313; Oct., 340; Dec..... 408
- Guernseys, A Fine Herd of, by X..... 274
- H.**
- Hampton, Gardens, etc., at..... 248
- Harness, Care of..... 272
- Harvest and Grain Trade in Great Britain..... 320
- Health Notes—Fresh Air in the Bed-room, Croup, 30; Consumption, 150; Cure for Diphtheria, by Wm. Baird, 183; the "Sun" Cholera Mixture, 288; Maxims..... 353
- Hedges, Evergreen..... 341
- Heifers for Milk..... 331
- Heliotropes, Forcing, for Winter Blooms, by W. F. Massey..... 100
- Hogs.—Too Fat, by A. Chandlee, 92; Raising, Profitably, by W. E. Manakee, 239; by R. P. Speer, 305; Wintering, 315; Soak Corn

for, 335; Charcoal for, 367; Paralysis in, 367; Cholera in.....	273
Hoofs and Horns, How to Dissolve, 217; Horses' in Winter.....	336
Horse, A Sick.....	367
Horses.—Pulling, Halter for, 20; Fercherons, Importation of, by W. T. Walters, 71, 115, 154; Spring and Summer Diseases of, by Dr. R. P. Lord, 200; Epidemic among, in Baltimore, 336; Purchase of Percherons, 352; When to Feed Grain to.....	354
Horticultural Exhibition at Norfolk, Va....	244
Horticultural Improvements, by Mr. Shoemaker.....	225
House-Plants, Care of.....	373
Husbandry Jottings, by Philo.....	47
Hydrangea Otaksa, with cut.....	217

I.

Icehouses, with cut.....	414
Immigration and Labor, by L. G.....	83
Immigration, Promoting, to Maryland and Virginia, by A. T. W., 86; by T. L. Henley.....	128
Improving Pine Lands in Montgomery Co., Md., by W. E. Manakee.....	126
Inflammation of Bowels in the Horse.....	201
Influenza in Horses.....	201
Insects.—Asparagus Beetle, 106; Blister Beetle, 136, 180; The Cabbage Worm, 377; Carbolic Acid for.....	379

J.

Jersey Cattle, by X., 131, 166, 208; Jersey Cattle in Baltimore Co., by X., 133; by T. A. Seth, 167; Prize-Takers at Timonium. 393	
Jersey Blue Fowls, with cut.....	137
Jersey Red Swine, by W. E. Manakee.....	169
"Jersey Belle" of Scituate, Death of.....	290
Jerseys, Butter Families among.....	331

L.

Laborer's Cottage, with cuts.....	232, 292
Land Farming—Its Value and what Increases it, by Deer Creek Club.....	122
Lands in Maryland, Improvement of, by A. B. Davis, 1; by L. G., 43; by A.....	46
Landscape Gardening, by Jno. Feast, Sr....	178
Large Farms, by W. H. White.....	162
Leaks, by J. A. C.....	236
Letters, Two Old, of and concerning Lafayette.....	363
Level Culture of Hoed Crops.....	361
Lilies, Chapter on, with cuts, by Observer..	101
Lime as a Manure.....	297
Live Stock, Raising Improved, by L. J., 132; Notes on, 19, 61, 107, 151; Sales of, 16, 76, 405	

M.

Making the Calling Sure, by Philo.....	129
Manures and Composts, 18; Economy in Composts, by Dr. D. Steuart, 48; Rye as Green Manure, 328; Application of Farm-yard Dung, by J. B. Lawes, 404; in Gunpowder Club.....	413
Market Gardening Around New York, by P. Henderson.....	249
Maryland, Advantages of, by A., 47; by L. G. 83	
Maryland Horticultural Society.....	141, 178, 227, 245

Maryland Poultry Club.....	137, 408
Meadows, Dairy, Never Pasture.....	268
Milk Fever, Prevention and Treatment of.....	331
Milking Machines.....	332
Millet, German, by Practice, 128; and Stock-Raising in Eastern Virginia, by W. Holman.....	49
Montgomery Co. Farmers' Convention. 59, 109	

N.

Naphthaline as an Insecticide.....	64, 190
Nitrogen as Nitric Acid, by J. B. Lawes....	329
Nomination, A Fit.....	352
Norfolk (Va.) Horticultural Society.....	98
Notes on Fruit on the Eastern Shore, by J. W. Kerr.....	310
Nuts, Papaws and Persimmons in Bedford Co., Va.....	141

O.

Oats, Cultivation of.....	107, 151
Obituary.—Samuel H. Dorsett, 79; Robert Chisolm, 226; Joseph Barlow, 424; John Merryman.....	425
Onions, Italian.....	378
Orchard and Fruit Garden.—Jan., 19; Feb., 62; March, 108; April, 152; May, 182; June, 216; July, 254; Aug., 280; Sept., 318; Oct., 346; Nov., 380; Dec.....	410
Orchards, by T. Wood, 64; Experiences in, by Ortleby.....	321
Orchard and Rye Grass.....	268
Ores Received.....	224
Ornamental Planting.....	372
Our Country's Stay, by Philo.....	162
Oyster Shells, Use of Crushed, by T. L. Henley.....	266

P.

Pea, The Cow, by R. S. Cole, 164; The American Wonder, by W. F. Massey....	345
Peas, Growing, by A. Rider.....	70
Pea-Vines as Mulch for Strawberries, by J. Fitz.....	339
Pears, Winter, with cuts, 65; Autumn, with cuts.....	143
Pelargoniums, How to Grow, by M. C.....	213
Pennsylvania, The Winter in.....	51
Peruvian Guano Syndicate.....	40
Phosphates in Fertilizers.....	206
Pigs, How to Feed.....	240
Pink-Eye in Horses.....	336
Pleasure-Grounds and Greenhouse, by Wm. D. Brackenridge.—Jan., 22; Feb., 65; March, 99; April, 144; June, 212; July, 245; Aug., 279; Sept., 313; Oct., 339; Dec.....	408
Pleuro-Pneumonia in Maryland, 34; A Commission for.....	290, 335
Plowing—of Garden Ground, by N. F. F., 72; Early or Late, 264; for Wheat, 280; Fall, 345; by Prof. Dunnington.....	359
Plums, Two Good, with cuts.....	98
Polled Cattle.....	354
Pot-Plants, Amateur Cultivation of.....	246
Potatoes, Diseases of, by Prof. Taylor, 28; Growing, Under Straw, by W. S., 180; Culture of, 181; Late, with cuts, 218, 224; Sweet, by J. Fitz, 104; by W. F. Massey. 146	

Poultry.—Hints for Beginners, by Geo. O. Brown, 16, 56, 93, 136; Breeds for Farmers, 210; Breeding Successfully, 210; No-Water Theory, 227, 242, 337; Moulting Season of, 276; Breed vs. Care and Feed, 308; Drainage, Carbolic Acid, Buying Fowls, 337; Extra Attention Now, 367; New Breeds, Hints to Poultry Fanciers, 368; Killing and Dressing for Market, 369; Mating Fowls, 174; Black Javas, 138; Jersey Blues, 137; Malays, 174; Maryland Poultry Club, 17, 137, 408; Enemies of, 408; Traps for..... 414
Poultry-House, with cut, 57; by T. W. Hooper, with cut..... 57
Produce Exchange..... 11, 40
Proscription of Farmers, by J. W. Ware..... 381
Pruning, Making the Cut in, with cuts, 99; Summer..... 281
Pyrethrum for Insect Parasites..... 93
Q.
Quince Culture, by J. Fitz..... 21, 63
R.
Rails, Durable, by T. Wood..... 51
Raspberry, Cultivation of the, by R. S. Cole 20
Regular Bearing in Fruit Trees, Inducing.. 371
Root Crops, 151, 224, 254, 280, 380; as Winter Food for Stock..... 203
Rye..... 280, 316, 345
S.
Season, The, and Sheep, by J. W. Ware.... 170
Seeds Best Sown in Autumn..... 375
Selling by Weight..... 362
Sheep—Improving, sales of Cotswolds, by E. C. Legg, 15; Profit in, 39; for Mutton and Wool, by J. W. Ware, 169; Cotswolds and Shorthorns, by E. B. Emory, 209; Good Fleeces, by E. C. Legg, 210; Cotswold Lambs and Summer Management, by E. C. Legg, 239; by J. W. Ware, 272; Look to the Lambs, 273; To Tell Ages of Sheep, 274; Shropshires, 305; Winter Pasture for Sheep, 305; Scab in, 306; Sheep-Raising in South, 334; Cotswolds, why Preferred, 365; Will They Pay..... 400
Shorthorns for Maryland, 319; Sales of, 291, 334; and Jerseys in England..... 260
Shoemaker, S. M., Improvements at Place of. 225
Silos Without Stones, with cut..... 130
Soil Restoration, by Dr. S. A. H. McKim... 355
South Carolina, Season in, and Cheap Lands of, by J. Witherspoon..... 51
Steers for British Market, Best Weight for.. 308
Stock Feeding with Fruit Culture..... 327
Stallion at Close of Season..... 301
Strawberry Time in Anne Arundel, Md., by R. S. C..... 277
Strawberries, Growing, 278; for Light and Heavy Soils..... 312
Swine Breeding..... 305
T.
Taking Time by the Forelock, by Wm. Hy. Farquahar..... 282
Test of Milk and Butter..... 241, 290
The Times, the Seasons, and their Requirements, by Philo..... 207

Things Done and to be Done, by Philo.... 207
Timely Thoughts, by Philo..... 87
Timothy, 280; Why Does It Run Out..... 363
Thoroughbred Stock—Is its Introduction Beneficial..... 298
Tobacco, Notes on... 18, 61, 107, 151, 181, 224, 253, 280, 316, 345, 380
Tobacco Plants, by R. Vincent, Jr..... 89
Tobacco Product, The..... 297
Tobacco Worm, Destroying, by Paris Green. 272
Tomatoes, Growing, by F. E. Corse..... 28
Tomato Rot, Worms, etc., by R. S. Cole.... 343
Top-Dressing, Hints on, by S..... 87
Traps for Weasel and Mink, with cuts..... 414
Trucking in Anne Arundel, Md., by R. S. Cole, 69; by T. B. Todd..... 70

V.

Vegetable Garden, Dec..... 411
Vegetables, Forcing Early, by R. S. Cole, 104, 147
Vegetable Garden, by John Watson.—Jan., 27; Feb., 68; March, 103; April, 145; May, 179; June, 216; Aug., 281; Sept., 315; Oct., 341; Nov., 376; Dec... 411
Veterinary.—Cramp in Stifle Joint, 93; Tuberculosis in Cattle, 13, 55; Colic in Horses, 200; Distemper or Influenza in Horses, 201; Diarrhœa in Calves, 166; Lice, Worms, Removal of After-Birth, Colic, Grease Heels, 171; Prevention and Treatment of Milk Fever, 331; Epilepsy and Pink-Eye..... 425
Vienna Cattle and Poultry Show..... 207
Virginia Grain in Baltimore, by Aubrey H. Jones..... 183

W.

Water for Chicks..... 174
West River, A Trip to..... 236
Wheat Crop, The, and Fertilizers, by Wm. Holman..... 292
Wheat Culture, with cuts, by A. R. J. Furst..... 261, 316, 345
Wilder, Hon. M. P., on Production of New Fruits from Seed..... 81
Work for the Month.—Jan., 18; Feb., 61; March, 107; April, 151; May, 181; June, 224; July, 253; Aug., 280; Sept., 316; Oct., 345; Nov..... 380
Wines, Native, and the Growing Demand for Them, by L. G., 43; by T. L. Henley.. 97
Winter Quarters, In, by W. F. Massey..... 66
Winter Killed Fruit, by J. Fitz..... 244
Wool, Doing Up, with cuts, 134; Division of, with cuts, 135; The, Market..... 271

Home Department.

Ceres, on Personal Influence, 29; on Scarlet Fever, 74; Suggestions for Improvement of House Plans, 113; Home Interests, Questions and Answers, 114, 149, 223, 258, 349; on Tramps, 148; A Lock-Barrel, with Cover, 150; Practical Suggestions for Emergencies, 185; Simple Cornice for Window Drapery, with cut, 187; Tanning Lamb Skins, 188; The Homes of our Working Men, 221; Laborers' Cottage, with cut, 222; A Strict Division of Household Duties of Questionable Advantage,

255; Nursing the Sick, 317; Power of the Voice as a Home Element, 348; Little Things, 383; Servants, 417; A Sleeve Protector.....	419
B., on Choosing Books and their Influence.....	31
Bristor, Mrs., A Wayside Window.....	30
Carrie Snow, Women Keeping Silent.....	72
C. E. G., Washing Flannel.....	150
E. N. B., Travelers and Traveling.....	284
Decorative Art for Country Homes....	114, 185
H. C., Screens, 149; Floors, Carpets, and Rugs.....	222
H. C. Hallowell, A Boon to Woman, The Cooley Creamer, 257; Laborer's Cottage, with cuts.....	292
J. B. M. B., Early Home Training of Children, 75; Care of the Sight, 187; Domestic Hints.....	188
Mrs. N. E. D., A Few Plain Truths for a Few Plain People.....	256
S. E. S., Home Studies.....	112
T., The Boy of To-Day.....	112
How to Make a Screen, with cut, 31; Wall Pocket, 32; An Ivy Screen, with cut, 74; Wall Pockets, with cut, 75; Draperies, 318; Embroidery Patterns, 114; Toilet Covers, Bed Spreads, etc., 224; A Handsome Rug, Table Cover, Applique Table Cover, 287; Draperies, 318; Concerning Beds and Bedding, 383; Utilizing Old Cans, with cut, 384; Laundry Hints.....	32
Parmaceti for Inward Bruise, 286; Homely Accomplishments, 287; Extract from Letter of Mrs. Garfield, on Womans' Work, 292; Taking Comfort in Life, 318; Recreation for Farmers, 349; Fussiness, 418; Lamps, 419; A Home-made Ottoman or Divan, with cut, 419; Ladies' Work-stand, with cut, 419; A Home-made Bracket, with cut, 420; Look After the Sink Drain.....	421
Domestic Receipts.	
Lemon Pies, Southern Pumpkin Pies, Domestic Yeast, Cleansing Fluid, 32; To Keep Celery Fresh, To Avoid Griddle Smoke, 75; Rice Cakes, 76; Spring Soup, Browned Veal, Spinnage, Steamed Rice, White Jelly, 150; Mrs. Johnson's Mountain Cake, Drying Cherries, 258; Dainty Sandwiches, Oatmeal Crackers, Potato Yeast, Durable Whitewash, 288; German Coffee-Cake, 318; Real English Plum-Pudding, Chocolate Creams, 385; Mashed Potatoes, 420; Delicacies for Convalescents.....	420

The Grange.

Maryland State Grange, 9, 417; Master's Address, 9; Committees, 9; Amendments to By-Laws, 11; Report of Committees, 12; Freedom, 76; Montgomery Pomona, 110, 219, 352, 385; Queen Anne's Pomona, 110; Asbestos, Gunpowder, Glencoe, Centennial, Friendship, Broad Creek, Great Falls, Liberty, Wye, Lewiston, Resolute, Limestone Valley, Springville, Farmers', Eastern Star, Summit, Homeland, 111; Patapsco, 112; Glenwood, Elkton, Choptank District, Chapel, Mantua, Asbestos, 183, 184; Co-operation, by A., 184; by J. D. Thorne, 228; The New Movement, by A., 219; Baltimore Co., 252, 282; Evenings at the Grange, by Virginia Clarke, 252; Choptank District, 282; Lecturer's Subject for August, 282; Taking Time by the Forelock, 282; Meeting of National Grange, Proceedings, Master's, Address, etc..... 415

Engravings.

Butter-Worker, 18; Halter for Pulling Horses, 20; Cheap Greenhouse, 24; Pitcher Plants, 27; Home-made Screen, 31; Country Cottage, 52; Bag Holders, 53; Milk and Cream Cabinet, 54; Poultry-Houses, 57, 58; Winter Pears, 65; Barn and Plans, 90, 91; Testing Eggs, 93; Coops, 93; Bee-Smoker, 95; Two Good Plums, 98; Pruning, 99; Lilies, 101, 102; An Aquarium, 106; Asparagus Beetle, 106; Silo Without Stones, 131; Jersey "Favorite of the Elms," 131; Box for Doing Up Wool, 134; Division of Wool, 135; Jersey Blues, 137; Black Java Fowls, 138; Drinking Fountain, 139; Comb Foundation, 140; "Louis Phillipe" Cherry, 141; "Langford Seedling" Apple, 142; Autumn Pears, 143; Lock Barrel-Cover, 150; Barn, with Plans, 160; Malay Fowls, 174; Perfection Box and Pan, 176; Evergreen Gateways, 179; Potato Blister Beetle, 180; Cultivation of Grapes, 214; Deutzia "Pride of Rochester," 217; Hydrangea Otaksa, 217; Delphiniums, 217; Late Potatoes, 218; Laborer's Cottage, 232, 292; An Ohio Corn Crib, 238; The Wheat Plant, 262; Hurdle for Sheep, 263; Mr. Fulford's Berkshires, 302, 316; Phlox Drummondii, 373; White Spruce, Chinese Hibiscus, 374; Juniperus Venusta, 375; Pentstemon, 376; Utilizing Old Cans, 384; Barreling Apples, 410; Icehouse, 414; Weasel Trap, 414; Mink Trap, 415; Home-made Ottoman, 419; Ladies' Work-stand, 419; A Home-made Bracket..... 420

STRAWBERRY PLANTS.

By the 100 or 100,000. Have a large and pure stock of all the leading standard varieties, and many of the newer sorts. Sharpless, Miner's Great Prolific, Mt. Vernon, Cumb. Triumph 75 cts. per C.; \$5.00 per M. Crescent Seedling, Monarch, Kentucky, Duncan, Wilson, Chas. Downing, 40 cts. per C.; \$2.25 per M. Also,

RASPBERRY PLANTS.

Gregg, \$18.00 per M Cuthbert, \$11.00 per M. Brandywine, \$9.00 per M.

R. S. COLE, Cedar Hill Fruit Farm, Harman's, A. A. Co., Md.

Important to Grocers, Packers, Hucksters, and the General Public.

THE KING FORTUNE-MAKER,

A New Process for Preserving Articles, Animal and Vegetable, from Fermentation and Putting their Odor

OZONE

serving all Perishable Vegetable, from Fermentation, Retain- and Flavor.

"OZONE—Purified air, active state of oxygen."—Webster.

THIS PRESERVATIVE is not a liquid, pickle, or any of the old and exploded processes, but is simply and purely OZONE, as produced and applied by an entirely new process. OZONE is the antiseptic principle of every substance, and possesses the power to preserve animal and vegetable structures from decay.

There is nothing on the face of the earth liable to decay or spoil which OZONE, the new Preservative, will not preserve for all time in a perfectly fresh and palatable condition.

The value of OZONE as a natural preserver has been known to our abler chemists for years, but until now no means of producing it in a practical, inexpensive and simple manner have been discovered. Microscopic observations prove that decay is due to septic matter, or minute germs that develop and feed upon animal and vegetable structures. OZONE, applied by the Prentiss method, seizes and destroys these germs at once, and thus preserves. At our offices in Cincinnati can be seen almost every article that can be thought of preserved by this process, and every visitor is welcome to come in, taste, smell, take away with him, and test in every way the merits of OZONE as a preservative. We will also preserve, free of charge, any article that is brought or sent prepaid to us, and return it to the sender, for him to keep and test.

FRESH MEATS, such as beef, mutton, veal, pork, poultry, game, fish, etc., preserved by this method can be shipped to Europe, subjected to atmospheric changes, and return to this country in a state of perfect preservation.

EGGS can be treated at a cost of less than one dollar a thousand dozen, and be kept in an ordinary room six months or more, thoroughly preserved; the yolk held in its normal condition, and the eggs as fresh and perfect as on the day they were treated, and will sell as strictly "choice." The advantage in preserving eggs is readily seen; there are seasons when they can be bought for eight or ten cents a dozen, and, by holding them, can be sold for an advance of from one hundred to three hundred per cent. One man, with this method, can preserve 5,000 dozen a day.

FRUITS may be permitted to ripen in their native climate, and can be transported to any part of the world. The juice expressed from fruits can be held for an indefinite period without fermentation; hence the great value of this process for producing a temperance beverage. Cider can be held perfectly sweet for any length of time.

VEGETABLES can be kept for an indefinite period in their natural condition, retaining their odor and flavor, treated in their original packages, at a small expense. All grains, flour, meal, etc., are held in their normal condition.

BUTTER, after being treated by this process, will not become rancid.

Dead human bodies, treated before decomposition sets in, can be held in a natural condition for weeks, without puncturing the skin or mutilating the body in any way. Hence the great value of OZONE to undertakers. There is no change in the slightest particular in the appearance of any article thus preserved, and no trace of any foreign or unnatural odor or taste. The process is so simple that a child can operate it as successfully as a man. There is no expensive apparatus or machinery required. A room filled with different articles, such as eggs, meat, fish, etc., can be treated at one time, without additional trouble or expense.

In fact, there is nothing that OZONE will not preserve. Think of everything you can that is liable to sour, decay or spoil, and then remember that we guarantee that OZONE will preserve it in exactly the condition you want it for any length of time. If you will remember this it will save asking questions as to whether OZONE will preserve this or that article—it will preserve anything and everything you can think of.

There is not a township in the United States in which a live man cannot make any amount of money, from \$1,000 to \$10,000 a year, that he pleases. We desire to get a live man interested in each county in the United States, in whose hands we can place this Preservative, and through him secure the business which every county ought to produce.

A FORTUNE awaits any man who secures control of OZONE in any Township or County.

A. C. Bowen, Marion, Ohio, has cleared \$2,000 in two months. \$2 for a test package was his first investment.

Woods Brothers, Lebanon, Warren County, Ohio, made \$6,000 on eggs purchased in August and sold November 1st. \$2 for a test package was their first investment.

F. K. Raymond, Morristown, Belmont Co., Ohio, is clearing \$2,000 a month handling and selling OZONE. \$2 for a test package was his first investment.

D. F. Webber, Charlotte, Eaton Co., Michigan, has cleared \$1,000 a month since August. \$2 for a test package was his first investment.

J. B. Gaylord, 80 La Salle St., Chicago, is preserving

eggs, fruit, etc., for the commission men of Chicago, charging 1½¢ per dozen for eggs and other articles in proportion. He is preserving 5,000 dozen eggs per day, and on his business is making \$3,000 a month clear. \$2 for a test package was his first investment.

The Cincinnati Feed Co., 498 W. Seventh St., is making \$5,000 a month in handling brewer's malt, preserving and shipping it as feed to all parts of the country. Malt unpreserved sours in 24 hours. Preserved by OZONE it keeps perfectly sweet for months.

These are instances which we have asked the privilege of publishing. There are scores of others. Write to any of the above parties and get the evidence direct.

Now, to prove the absolute truth of everything we have said in this paper, we propose to place in your hands the means of proving for yourself that we have not claimed half enough. To any person who doubts any of the statements, and who is interested sufficiently to make the trip, we will pay all traveling and hotel expenses for a visit to this city, if we fail to prove any statement that we have made.

HOW TO SECURE A FORTUNE WITH OZONE.

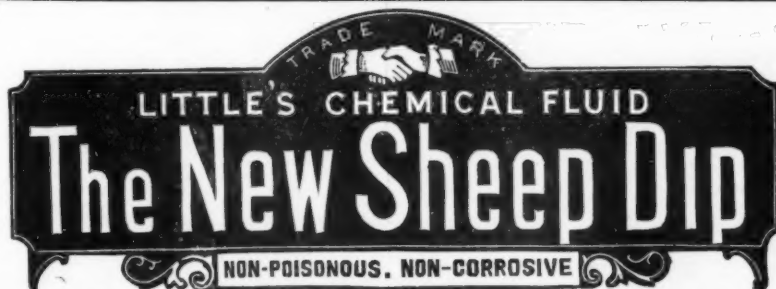
A test package of OZONE, containing a sufficient quantity to preserve one thousand dozen eggs, or other articles in proportion, will be sent to any applicant on receipt of \$2. This package will enable the applicant to pursue any line of tests and experiments he desires, and thus satisfy himself as to the extraordinary merits of OZONE as a Preservative. After having thus satisfied himself, and had time to look the field over

to determine what he wishes to do in the future—whether to sell the article to others or to confine it to his own use, or any other line of policy which is best suited to him and to his township or county—we will enter into an arrangement with him that will make a fortune for him and give us good profits. We will give exclusive township or county privileges to the first responsible applicant who orders a test package and desires to control the business in his locality. **The man who secures control of OZONE for any special territory will enjoy a monopoly which will surely enrich him.**

Don't let a day pass until you have ordered a test package, and if you desire to secure an exclusive privilege we assure you that delay may deprive you of it, for the applications come in to us by scores every mail—many by telegraph. "First come first served" is our rule. If you do not care to send money in advance for the test package we will send it C. O. D., but this will put you to the expense of charges for return of money. Our correspondence is very large; we have all we can do to attend to the shipping of orders and giving attention to our working agents. Therefore we cannot give any attention to letters which do not order OZONE. If you think of any article that you are doubtful about OZONE preserving, remember **WE GUARANTEE THAT IT WILL PRESERVE IT, NO MATTER WHAT IT IS.**

REFERENCES.—We desire to call your attention to a class of references which no enterprise or firm based on anything but the soundest business success and highest commercial merit could secure. We refer, by permission, as to our integrity and to the value of the Prentiss Preservative, to the following gentlemen: Edward C. Boyce, member Board of Public Works; E. O. Eshelby, City Comptroller; Amor Smith, Jr., Collector Internal Revenue; Wulsin & Worthington, attorneys; Martin H. Harrell and B. F. Hopkins, County Commissioners; W. S. Cappeller, County Auditor; all of Cincinnati, Hamilton County, Ohio. These gentlemen are each familiar with the merits of our Preservative, and know from actual observation that we have without question **THE MOST VALUABLE ARTICLE IN THE WORLD.** The \$5 you invest in a test package will surely lead you to secure a township or county, and then your way is absolutely clear to make from \$3,000 to \$10,000 a year. Give your full address in every letter, and send your letter to

PRENTISS PRESERVING CO., Limited,
S. E. Cor. Ninth and Race Sts., Cincinnati, Ohio.



MORRIS LITTLE & SON, Proprietors and Manufacturers.

A highly concentrated liquid for dipping or washing **Sheep, Cattle, Horses, Dogs, Pigs, Fowls, etc.,** killing **Ticks, lice, fleas, maggots, all insects and internal parasites.** Curing **Scab, Foot-rot, Mange, Sores, Wounds, etc.,** preventing scratching and pulling, promoting the growth of wool and flesh, and for other purposes.

One gallon makes "DIP" for 200 Sheep for Ticks, and for at least 50 Sheep for Scab.

Does not require heating or any preparation. Simply add **cold** water, and it is ready for use; is self-mixing, easily applied, and always effective. Usable in full fleeces or when shorn, and safely applied in **Winter.** Is of a warm and protective nature and does not wash off in stormy weather. Makes the skin soft and loose, the wool clean, lustrous and silky, and develops that bright bloom so much prized by flock-masters. Increases flesh. Repays cost four times over. Harmless to animal, person or clothing, available for internal use, being positively non-poisonous and non-corrosive. Its high concentration renders it easy and cheap to transport. It is superior to any other "dip" in all respects, having every good quality without any disadvantage whatever, and the cost is less. It is also a "fly" and sown-seed protector, and a fertilizer, etc.

Cheap, Harmless, Clean, Pleasant, Convenient, Rapid, Infallible.

Officially tested by Government analysts. Awarded "Diploma" of New England Agricultural College, a Diploma for my exhibit at the International Exhibition of Sheep and Lambs, Philadelphia, Sept., 1880. Endorsed by American Agriculturist; sample supplied by me to Dr. Thurber, Sept., 1879, and to B. D. H. Halsted, associate editor, Sept., 1880; Rural New Yorker, Henry Stewart, Esq., N. J., author of "The Shepherd's Manual;" H. J. Chamberlain, Esq., Texas, on samples supplied by me to each of them, and many other leading authorities. Price \$1.80 per gallon; \$1.65 for 10 or more gallons. Shipped in Barrels, or boxed Cans.

T. W. LAWFORD, Gen'l Agent, Baltimore, Md., Box 504.

My agency established April, 1879. Send 3ct. stamp for U. S. testimonials. Mention this Magazine.

BERKSHIRES

MY HERD has exhibited with its usual success at the shows this season, having

CARRIED OFF THE RIBBONS AT MINNEAPOLIS, CHICAGO,

PEORIA, ST. LOUIS,

And the MARYLAND STATE FAIR.

FIRST-CLASS ANIMALS

of all ages for sale, including two noted prize-winning boars, fit to stand at the head of any herd in the country.

ALEX. M. FULFORD, Bel Air, Maryland.

BEES AND HONEY.

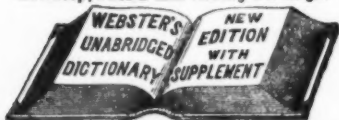
THE BEE JOURNAL was started in 1861, as a monthly, and upon its twentieth birthday, January, 1881, it was changed to a weekly, and has not only fully sustained its former excellent reputation, but it has even exceeded the expectations of its most sanguine admirers, by advancing new and progressive ideas upon the various topics of Bee Culture. It is the best and most thoroughly practical publication on Bees and Honey in the world, and all those who keep bees will do themselves a lasting benefit by sending \$2.00 for the WEEKLY BEE JOURNAL for 1882. All the rest of the numbers for 1881 are sent free to new subscribers for 1882. It is edited and published by Thomas G. Newman, whose reputation as a bee master is world-wide. Send for a sample copy. Address AMERICAN BEE JOURNAL, Chicago, Ill.]

WANTED ON SALARY.

Ladies in every neighborhood to get up clubs for something New. Suitable for an Elegant Present. Send 25c. in Stamps, with references, for sample, full instructions and terms to agents. **F. L. HORTON & CO., Indianapolis, Ind.**

WEBSTER'S UNABRIDGED.

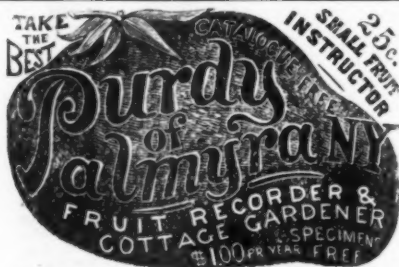
In Sheep, Russia and Turkey Bindings.



New Edition of WEBSTER has 118,000 Words, 3000 Engravings, 4600 New Words & Meanings, and Biographical Dictionary of over 9700 Names. **Get the Standard.**

THE BEST GIFT Standard in the Gov't Printing Office—32,000 copies in Public Schools—sale 20 times as large as the sale of any other aid in a Family, in helping its members to become intelligent. Best aid for **TEACHERS** and **SCHOLARS**, in **SCHOOLS**. Most acceptable to **Pastor, Parent, Teacher, Child, Friend**, for Holidays, Birthday, Wedding, or any other occasion.

Published by **G. & C. MERRIAM**, Springfield, Mass.



Splendid new Catalogue of Trees, Plants, Seeds, new Grapes and Small Fruits, **free**. Specimen copy of the **best** Fruit and Flower Paper published, **free**. Extra inducements to Club Agents and those desiring to sell our Plants. Our 64-page **Small Fruit Instructor** (new edition) tells how to plant, grow and market; post-paid, 25c. Address, **PURDY, of Palmyra, N.Y.**

PATENTS

We continue to act as Solicitors for Patents, Caveats, Trade Marks, Copyrights, etc., for the United States, Canada, Cuba, England, France, Germany, etc. We have had **thirty-five years' experience**.

Patents obtained through us are noticed in the **SCIENTIFIC AMERICAN**. This large and splendid illustrated weekly paper, \$3.20 a year, shows the Progress of Science, is very interesting, and has an enormous circulation. Address **MUNN & CO., Patent Solicitors**, Pub's. of **SCIENTIFIC AMERICAN**, 37 Park Row, New York. Hand book about Patents free.

\$777 A YEAR and expenses to Agents. Outfit Free. Address—**P. O. Vickery, Augusta, Me.**

GRAPE VINES.

All Leading Varieties in large supply. Warranted true to name. Prices low. Also, the celebrated

NEW WHITE GRAPE,

PRENTISS

Send stamp for Price and Descriptive List. Also Trees, Small Fruits, etc.

T. S. HUBBARD, Fredonia, N. Y.

PARKER'S GINGER TONIC



Parker's Hair Balsam.

The Best, Cleanest, and Most Economical Hair Dressing. Never fails to restore the youthful color to gray hair.

50c. and \$1 size. Large Saving Buying Dollar Size.

Ginger, Buchu, Mandrake, Stillingia, and many of the best medicines known are combined in Parker's Ginger Tonic, into a medicine of such varied powers, as to make it the greatest Blood Purifier and the Best Health & Strength Restorer Ever Used.

It cures Rheumatism, Sleeplessness, & diseases of the Stomach, Bowels, Lungs, Liver & Kidneys, & is entirely different from Bitters, Ginger Essences and other Tonics, as it never intoxicates. Hiscox & Co., Chemists, N. Y.

HOLLY and DEMAS BRACKET SAWS

Children's Educators and Money-Makers. Holly Bracket Saw \$3, Demas Bracket Saw and Lathe \$8.

We guarantee either of these machines to give better satisfaction than anything heretofore offered. Boys can make more money than anything else they can work at.

One Thousand Dollars

In prizes, ranging from \$25 to \$250, are offered for the finest work on either machine. Prizes are so arranged that the beginner has just as good a chance as the expert. We make a special offer whereby any boy can get a

\$3 BRACKET SAW FREE



With one of these machines he becomes independent, can earn what spending money he requires, and in many instances establishes himself in a profitable business. For Illustrated Catalogue and Manual of Sorrows and Inland work, address, with 3 cent stamp,

A. H. SHIPMAN, Rochester, N. Y.

Heppner



PENNSYLVANIA ROUTE,

FORMED BY THE

NORTHERN CENTRAL

AND

Pennsylvania Railroads

ON THE

West, Northwest and Southwest,
To PITTSBURG, CINCINNATI,
LOUISVILLE, INDIANAPOLIS,
CHICAGO, ST. LOUIS,
AND ALL OTHER

PROMINENT POINTS.

BALTIMORE & POTOMAC

AND

Alexandria and Fredericksburg Railways
ON THE SOUTH TO

Washington, Richmond,

AND ALL POINTS IN THE

Atlantic and Gulf States.

THE ONLY

ALL RAIL LINE

WITH NO

OMNIBUS TRANSFER AT WASHINGTON.

NORTHERN CENTRAL

AND

PHILADELPHIA and ERIE RAILWAYS

ON THE NORTH TO

HARRISBURG, WILLIAMSPORT, ELMIRA
WATKINS GLEN, ROCHESTER, ERIE,
BUFFALO, NIAGARA FALLS.

Baggage called for and checked at Hotels and
private residences through to destination. Sleeping
and Parlor car accommodations secured.
Through tickets sold and information given at
company's office,

N. E. Corner Baltimore and Calvert Streets,
AT DEPOT N. C. RAILWAY,
UNION DEPOT, CHARLES ST. STATION,
And PENNSYLVANIA AVE. STATION.

FRANK THOMSON,
General Manager.

J. R. WOOD,
Gen'l Passenger Ag't,
Penna. & N. C. R. R.

VIRGINIA LANDS.

UPPER JAMES REAL ESTATE AGENCY

BY WILLIAM HOLMAN,

CARTERSVILLE, Va.

Who offers for sale upwards of 12,000 acres of land
lying in one of the most desirable regions of Eastern
Virginia.
Catalogues sent on application. my-tf

PRATT'S ASTRAL OIL

WILL NOT EXPLODE.

Wholesale and Retail.

LAMPS OF EVERY DESCRIPTION,
For Sale by W. & H. SPILCKER,

Agents for Chas. Pratt & Co.
New York.

136 Baltimore St.

IMPERIAL WINE VINEGAR.

NONPAREIL CIDER VINEGAR.

Strictly pure and reliable. Many imitations, cost-
ing 3 cents a gallon, are sold as Cider Vinegar. To
guard against deception observe that packages bear
our brands. Fresh APOLINARIS WATER.

FREDK. M. BOLLMAN, Importer,
63 S. GAY STREET.

FOUTZ'S HORSE AND CATTLE POWDERS



Will cure or prevent Disease.
No HORSE will die of COLIC, BOTS or LUNG Fe-
ver, if Foutz's Powders are used in time.
Foutz's Powders will cure and prevent Hog CHOLERA.
Foutz's Powders will prevent DYSENTERY in PIGS.
Foutz's Powders will increase the quantity of milk
and cream twenty per cent., and make the milk sweet
and sweet.
Foutz's Powders will cure or prevent almost EVERY
DISEASE to which Horses and Cattle are subject.
FOUTZ'S POWDERS WILL GIVE SATISFACTION.
Sold everywhere.

DAVID E. FOUTZ, Proprietor,
BALTIMORE, Md.

HELP

Yourselves by making money when a golden
chance is offered, thereby always keeping
poverty from your door. Those who always
take advantage of the good chances for mak-
ing money that are offered, generally become wealthy,
while those who do not improve such chances remain in
poverty. We want many men, women, boys and girls to
work for us right in their own localities. The business
will pay more than ten times ordinary wages. We furnish
an expensive outfit and all that you need, free. No one
who engages fails to make money very rapidly. You can
devote your whole time to the work, or only your spare
moments. Full information and all that is needed sent
free. Address STINSON & Co., Portland, Maine.



Cyprian Queens.

Holy Land Queens.

Italian Queens.

Send for SPECIAL CIRCULAR of these valuable varieties of BEES before purchasing elsewhere.

I shall devote my personal attention to rearing and introducing, as last season, and in every instance guarantee satisfaction or money refunded.

The Perfection Honey Box.

Parties interested in the production of nice COMB HONEY are respectfully referred to J. Clark Taylor, Lankford's, Kent Co.; Robt. Nicholson, Esq., Hainesville, Kent Co.; Edmund L. Woodside, Balto.; Wm. P. Webb, Insurance Agent, Balto.; R. Oliver, Esq., Balto. All are invited to visit our Apiary and see the workings.

C. H. LAKE,

Sunnyside Apiary,

Cor. Greenmount Ave. and John St.

BALTIMORE, MD.

A GARDENER

Desires a SITUATION as Manager of a Market Garden or extensive Private Garden; has had twenty years' experience. Would accept First Assistant's position in a large establishment. Can enter new place next September or next year. Address,

CHAS. E. SANFORD,

Gardener Mt. St. Mary's College,

Emmitsburg, Frederick Co., Md.

Registered Berkshires.

For Sale.—Very choice lot of Pigs, sired by Boar Barney, son of the famous Boar Robin Hood III. Orders should be sent in at once to secure the best of litter. For further information and prices apply to

Frederick von Kapff,

Govanstown, Balto. Co., Md.

HOPE FOR THE DEAF

Dr. Peck's Artificial Ear Drums

PERFECTLY RESTORE THE HEARING and perform the work of the Natural Drum. Always in position, but invisible to others. All Conversation and even whispers heard distinctly. We refer to those using them. Send for descriptive circular with testimonials. Address, **H. P. K. PECK & CO., 555 Broadway, New York.**

\$5 Outfit sent free to those who wish to engage in the most pleasant and profitable business known. Everything new. Capital not required. We will furnish you everything. \$10 a day and upwards is easily made without staying away from home over night. No risk whatever. Many new workers wanted at once. Many are making fortunes at the business. Ladies make as much as men, and young boys and girls make great pay. No one who is willing to work fails to make more money every day than can be made in a week at any ordinary employment. Those who engage at once will find a short road to fortune. Address **H. HALLETT & Co., Portland, Maine.**

To Dealers and Consumers of Paints

We respectfully call your attention to our **Enamel Ready Mixed Paints**, prepared for immediate use, which is rapidly superseding the ordinary Paint. Experience has fully demonstrated that it will stand exposure to the weather much longer than Paint mixed in the usual way, that it will retain its *Brightness of Color*, and will not crack or peel off.

EUTAW PAINT CO.

Manufacturers of

White Leads

PUTTY,

Snow White

ZINC

&c.

PAINTS.

PAINTS

In Oil,

COLORS,

SALTPETRE,

CHEMICALS, &c

100 W. LOMBARD ST

BALTIMORE, MD.



ENAMEL READY-MIXED PAINTS.

It can be applied by any person and the expense of employing a Painter is saved, whilst the cost of the Paint will be one-third less than when mixed in the ordinary way.

We are prepared to give any information that may be desired on application by mail or in person, and solicit a trial from you to be convinced of the above statements. Address:—

Eutaw Paint Co.

100 W. Lombard Street,

BALTIMORE, MD.

THE CONTINUOUS DRAIN TILE MACHINE.

Every Farmer should Manufacture his own Tile and Water Pipe.

ENGLISH.
GERMAN.
FRENCH.
ROMAN.

{ CEMENTS }

SELENITIC.
ROSENDALE.
ROUND TOP.

For Machines and COUNTY RIGHTS address

Wm. Wirt Clarke,
61 S. Gay St., Baltimore.

SAVE THE EXPENSE OF BUILDING A BRICK CHIMNEY.

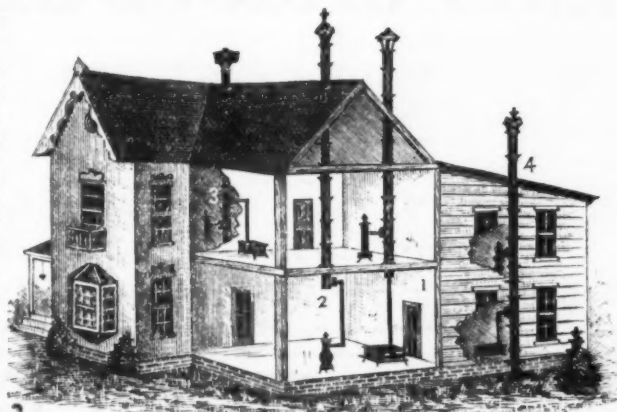
Our Fire Clay Chimney Pipe does not rust or crack by heat or crumble from frost. It has been used 10 years for Dwellings, Schools, Churches, &c. No danger from fire, as it does not communicate heat to wood. Insurance Companies have decided it to be a safer Chimney than brick. It is equally as solid, and no bricks nor brick-layer are required—any one can put it up. Each section is two feet long and rests in the bowl of the next. We show four forms of construction. A complete chimney to use in two stories can be furnished for about \$5 00.

Send for descriptive circular with full information.

CHAS. H. TORSCH & CO.

101 Hanover St.,

BALTIMORE.



THOMAS NORRIS & SON,

MANUFACTURERS AND DEALERS IN

Agricultural Implements, Machinery, Seeds,

&c., &c., &c.

No. 60 Light Street, Baltimore, Md.

FOR SALE.

ONE YOKE YOUNG WELL-TRAINED HOLSTEIN OXEN, with yoke and nearly new cart.

ONE JERSEY BULL, "HAZEL NUT," in excellent condition, between 2 and 3 years old, registered in the Herd Register of the American Jersey Cattle Club.

ONE JERSEY BULL, 8 months old, also registered in the Herd Register of the American Jersey Cattle Club.

APPLY AT

S. M. SHOEMAKER'S PLACE,

Near Stevenson's Station, N. C. R.W.,

BALTIMORE COUNTY, MD.

PLASTER

always in stock. ENGLISH PETRIFYING PAINT FOR DAMP WALLS and Leaky Cisterns.

The Land Plaster we offer contains 20 per cent. more Sulphate of Lime than the Plaster generally sold, (being ground from the Haas Rock). Special inducements made to large dealers and manipulators.

CALCINED AND DENTIST PLASTER

WM. WIRT CLARKE, 61 S. GAY ST., BALTIMORE.

J. M. LAROQUE'S ANTI-BILIOUS BITTERS

CURES

Dyspepsia, Nervousness,
Bilious Attacks, Sick and
Nervous Headache, Con-
stipation of the Bowels,
Kidney and Bladder Af-
fections, Sour Stomach,
Chills and Fevers,
Female Diseases,
All Bilious Affections,
and is an
Excellent Stomachic.

Is a purely vegetable faultless Family Medicine, for all diseases caused by a Deranged State of the Liver. It has been manufactured at Laroque's Pharmacy, Cor. Baltimore and Harrison Sts., for more than fifty years. Its efficacy in all forms of Liver diseases has been tested and approved by thousands who have used it successfully. The price also is within the reach of all, being 25 cts. for packages and \$1 for the liquid in bottles.

REGULATES

Torpid Liver, and cures all Diseases arising from a disordered stomach. Its use can be stopped at any time, without any bad effects. Always beneficial; never harmful. Be sure and get the genuine. Prepared at

Laroque's Pharmacy,
Cor. Baltimore and Harrison Sts.,
and having the signature of W.
E. Thornton on the label.

W. E. THORNTON, - - PROPRIETOR.

N. E. Cor. Baltimore and Harrison Sts., BALTIMORE, MD.

Sold by Druggists and Storekeepers Everywhere.

Eclipse Wind Engine

Victorious at the Three World's Fairs. Has taken 3 Gold, 5 Silver and 2 Bronze Medals, and 150 First Premiums.



The Railroads of United States and Canada put in more ECLIPSE MILLS than all others put together. We export more than all others combined. Our Mill is not sold as a cheap Mill, but as the best Mill in the world. For last four years I have never received a cent for repairs of any of my Mills that I have put up, and have replaced several other mills by the ECLIPSE. We make 18 sizes, from 8 1/2 to 60 feet in diameter, from 2-horse to 40-horse power, and used for pumping from wells, springs, brooks, rivers. Also have

POWER MILLS for grinding grain, shelling corn, sawing wood, cutting fodder, &c., &c. I furnish Mills separate, or will contract to do whole job, including tower, pumps, piping, &c., plain or ornamental, and will guarantee to give satisfaction, and refer to the following parties who have them:

J. B. Mordecai,
John E. Phillips,
John Gill,
Hon. James A. Gary,
D. C. Hamill,
Henry W. Rogers,
J. W. Harvey,

Charles J. Baker,
L. H. Robinson,
Horace Abbott,
John S. Gilman,
D. D. Mallory,
James W. Tyson,
A. B. Morton & Son,

Dr. Wm. Stuart,
Capt. W. D. Burchinal,
Edward Lynch,
John R. Long,
W. S. Wedge,
Wm. A. Cunningham;
Rev. C. W. Baldwin,

German Bros.,
J. B. Brinkley,
Hon. Barnes Compton,
Wm. H. Hiss,
Sam'l Black,
Hon. R. T. Merrick,
Register Bros.

Nonpareil Farm and Feed Mill

FOR GRINDING CORN, BONES, &c.

Address or call on


JOHN H. BUXTON & CO. Gen'l Agts.

19, 21 and 23 East Pratt Street, BALTIMORE, MD.

☞ The ECLIPSE has taken the first Prize Medal at the World's Fair, 1890, at Sydney, Australia.

BEST GOODS **LOWEST PRICES**

WHEAT

TRADE

MARK.

For \$12.00 a Farmer can buy a formula (520 lb) of POWELL'S PREPARED CHEMICALS for WHEAT.
 This, when mixed at home, makes **ONE TON** of **SUPERIOR PHOSPHATE**, which is equal in plant-life and as certain of successful crop production as many of the high-priced Phosphates.
 No trouble to mix; no extra expense. Full directions.
 Powell's Chemicals have been thoroughly tried, give universal satisfaction, and we offer leading farmers in every state as reference.
 Send for Pamphlet. **BEWARE OF IMITATIONS.**
BROWN CHEMICAL CO., Baltimore, Md., Sole Proprietors.
 MANUFACTURERS OF { Powell's Tip-Top Bone Fertilizer, price only \$30 a ton net cash.
 Pure Bone Meal, Pure Dissolved Bone, Potash, Ammonia,
 and all high-grade Fertilizing Materials.

FERTILIZERS

Powell's Tip Top Bone Fertilizer.

Only One Price--\$30.00 a Ton Cash. No Commission to Agents.

SPECIAL NOTICE.

The "Tip Top bone fertilizer, as will be seen by analysis, is very rich in plant food. We put it on the market as being much cheaper and equally as good as many of the higher priced brands that are now sold. The analysis of this fertilizer is guaranteed, and is in the best mechanical condition for drilling. *There is not one pound of earth or foreign matter used in making the compound.* These facts, with the high chemical value and low price of the "Tip Top," will make it fill a demand made by a great many farmers for a cheap and efficient Fertilizer where they have not the time or means of manipulating chemicals successfully.

GIVE IT A TRIAL.

A pamphlet giving full description of our goods and testimonials from leading farmers as to their qualities, mailed to any address on application to

BROWN CHEMICAL CO., 29 Hanover Street, Baltimore.

FARMERS, LOOK AT THIS!!

A Fire Engine in your Well!

The "Success" Pump is the Best in the Market.

A WOMAN AND CHILD
Can. Extinguish a Fire.



**A Double-Acting, Anti-Freezing
FORCE & SUCTION PUMP COMBINED**

Can be used either as submerged
or Suction Pump.

Adapted to any kind of Well.

Will raise water 400 feet if re-
quired.

This Pump having two cylinders (Brass) and piston rods, each of which are double acting, enables it to throw twice the amount of water of any other pump.

For simplicity and durability it excels as a deep well pump. It is so constructed as to be operated by either hand or machine, making a perfect Wind Mill Pump.

Each pump is furnished with hose attachment, and is most effective in case of fire. Write for Circulars giving prices, &c., to

WINSLOW ALLDERDICE,
P. O. Box 262. 80 SOUTH CHARLES STREET,
BALTIMORE, MD.

— ALSO AGENT FOR THE "NEW HOLT-FAST STEEL BARB FENCE WIRE," THE BEST AND CHEAPEST FENCE IN THE WORLD. "CHAMPION WIRE STRETCHER," THE BEST AND CHEAPEST IN USE.

Patented Aug. 17, '80

EASTERN SHORE NURSERIES, DENTON, CAROLINE CO., MD.


 FALL OF 1881. 

My new "PRICE-LIST" for coming fall is ready, and will be mailed free to all applicants giving Post-Office address *plainly written*, (including name of county.) My prices are "SUBSOILED," so far as a downward tendency goes; while I am happy to inform my former customers and all the readers of the *American Farmer* that the growth of my stock was never better than the present season. Peach and Apple trees are particularly fine, while the list of valuable varieties has been greatly increased. A complete assortment of all kinds of Fruit, Shade and Ornamental Trees; an immense stock of Grape Vines, Asparagus Plants, Flowering Shrubs, &c., &c. Correspondence solicited.

J. W. KERR, Proprietor.

— LUMBER. — THOS. MATTHEWS & SON,

88 N. High St. and Cor. Canton Ave. and Albemarle St., Baltimore.

 WHITE PINE AND YELLOW PINE LUMBER FOR BUILDING.
ROUGH AND DRESSED LUMBER.

HARDWOOD FOR WHEELWRIGHTS AND CABINET-MAKERS. SHINGLES,
LATHS, PALES, Etc., AT LOWEST PRICES.

R. J. BAKER.

ESTABLISHED 1837.

R. J. HOLLINGSWORTH.

SULPHATE
OF
AMMONIA.

R. J. BAKER & CO.

PURE
NITRATE
SODA.

MANUFACTURERS AND DEALERS IN

PURE GROUND BONE, CHEMICALS, ACIDS, &c.

— FOR —

Manufacturing Super-Phosphates.

Ammoniated Super-Phosphate for All Crops.

Pure Dissolved Raw Bone.

Pure Fine Ground Raw Bone.

Stag Super-Phosphate of Lime for Tobacco.

FACTORY AT LOCUST POINT.

Office, 36 & 38 South Charles St.,

BALTIMORE, MD.

1828.

1881.

Clairmont and Furley Hall Nurseries.

LARGE STOCK FOR FALL.

100,000 Apple Trees of all leading varieties. A large stock of Standard and Dwarf Pears, Peaches, Cherries, Plums, Damsons, Grape Vines, Raspberries, including Gregg and Queen of the Market. 20 varieties of Strawberry Plants. Evergreen and Shade Trees, shrubbery and Climbing Vines.

WM. CORSE & SONS,

Box 248, Baltimore City.

Nurseries—Bel Air Road, 2 miles from City.

GEO. F. SLOAN AND BRO.

— LUMBER —

DOORS, SASH, BRICKS, &C.
IN LOTS TO SUIT.

132 Light Street Wharf, Baltimore.

J. J. TURNER.

J. D. KEILEY, Jr.

J. J. TURNER, JR.

J. J. TURNER & CO.'S

"Excelsior," "Ammoniated Bone Super-Phosphate," "Pure Dissolved Bones."

(ESTABLISHED 1828)

— TO COTTON PLANTERS. —

1858.



1881.

Forming the most concentrated, universal and durable FERTILIZER ever offered to the farmer—combining all the stimulating qualities of Peruvian Guano and the ever-durable fertilizing properties of Bones in fine, dry powder, prepared expressly for drilling, and can be applied in any quantity, however small, per acre. It is the opinion of many close-calculating farmers, after TWENTY-THREE YEARS experience in testing it side by side with other popular fertilizers, that an application of 100 pounds of "EXCELSIOR" is equal to 200 pounds of any other fertilizer or guano, and therefore fully 100 per cent. cheaper.

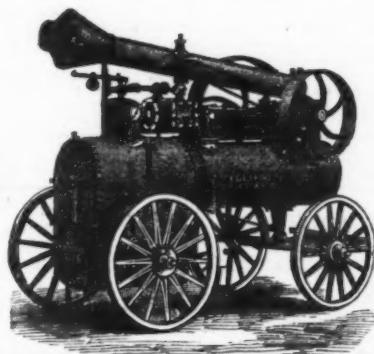
Uniformity of Quality Guaranteed by the Manufacturers.

Farmers can only be secure from inferior imitations by seeing that every bag is BRANDED WITH OUR NAME AND THE ANALYSIS IN RED LETTERS.

J. J. TURNER & CO. 42 W. Pratt St. Baltimore Md.

JOSHUA THOMAS, **Steam, Agricultural and Mill Machinery**

ECLIPSE
Agricultural
ENGINE.



Best, Cheapest,
and most
Economical En-
gine in the
Market.

FIRST PREMIUM WHEREVER EXHIBITED.

Buffalo Pitts Thresher and Cleaner,

The old Standard and still ahead of all competitors.

Kirby and Wheeler Mowers and Reapers,

OSBORNE SELF-BINDING HARVESTER.

A full line of Harvesting Machines, adapted to the wants
and taste of Farmers any and everywhere.

Buckeye Grain and Fertilizer Drill,
Star, Victor and Iron Horse Rakes,
Circular Saw Mills,
Portable Grist Mills,
Millstones, Smut Machines, Bolting Cloths,
Mill Picks, Leather and Gum Belting,
Cucumber-Wood Pumps,
Buckeye Force Pump,
The Watt and Ball Plows, &c., &c.

Prices and Descriptive Circulars on application, and correspondence solicited from all wanting anything in my line.

OFFICE AND WAREHOUSE;

No. 53 LIGHT STREET,

BALTIMORE, MD.

GILPIN'S VEGETABLE LIVER PILLS

Are prepared, with great care, from medical plants, are coated with sugar that they may be taken by the smallest child and upon the most delicate stomach; are intended especially to act upon the Liver—thereby relieving all such diseases as COSTIVENESS, HEADACHE, PARALYSIS, DYSPEPSIA, COLDS, JAUNDICE and all diseases of a Bilious origin. No better evidence can be offered in favor of these Pills than the very fact that where their ingredients are known to family physicians, they are using them in their private practice. We append the following from one of our most prominent physicians:

OAKLAND, June 28, 1859.

DR. GILPIN—After carefully examining the formula of your Sugar-Coated Pills, I feel it but justice to say, that the combination is certainly perfect, and comprises the only remedies I ever believed were the proper ones to be used in diseases of a bilious origin. I shall take pleasure in recommending them not only to my patients, but the entire medical profession.

Yours truly, J. M. WISTAR, M. D.

From one of the leading retail druggists of West Virginia.

Weston, West Virginia, June 18, 1869.

MESSRS. CANBY, GILPIN & Co.—Gents: Please send by express twelve dozen Gilpin's Vegetable Liver Pills. I have the most flattering accounts from all who have used them, and believe the day is not far distant when they will supersede all others.

Yours,

F. M. CHALFANT.

We could fill several pages with certificates, &c., from prominent men throughout the country, but prefer to let the Pills in the future, as they have in the past, rest entirely on their own merit—knowing that wherever they are known their use will pass down from generation to generation.

GILPIN'S VEGETABLE LIVER PILLS are sold by all respectable Druggists and Country Store-keepers throughout the United States and Canadas.

Principal Depot, CANBY, GILPIN & CO., Baltimore.

Established]

A. E. WARNER,

[1811.

MANUFACTURER OF

Silver Ware & Rich Jewelry

English, Swiss and American WATCHES of the Best Makers;
Importer and Dealer in Diamonds, Fine Watches,
Silver-Plated Ware, Table Cutlery, &c.

WEDDING PRESENTS,

Premiums for Agricultural Fairs, Fine Bronzes, Opera Glasses and Shell Jewelry, &c.

All of which is offered at GREATLY REDUCED PRICES.

No. 135 W. Baltimore Street, near Calvert, Baltimore.

ROSEBANK NURSERIES,

GOVANSTOWN, BALTIMORE COUNTY, MARYLAND.

ORNAMENTAL AND FRUIT TREES, FLOWERING SHRUBS,
AND HERBACEOUS PLANTS.

We invite the attention of the public to our select stock of the following: STANDARD & DWARF PEARS,—2, 3 and 4 years old. APPLES—standard and dwarf. CHERRIES—standard and dwarf. APRICOTS, CRAB APPLES, MULBERRIES, GRAPE VINES, of the most popular kinds, together with other small fruits.

Our COLLECTIONS of ORNAMENTAL Trees and Shrubs are large, and embrace most of the rarest sorts.

ROSES on their own roots, with the newest of BEDDING-OUT plants by the dozen or 1,000, for which we have issued a separate Catalogue.

SPECIAL.—60,000 one and two-year old OSAGE ORANGE plants for hedges.

CATALOGUES FORWARDED ON APPLICATION. ORDERS BY MAIL PROMPTLY ATTENDED TO. ALL GOODS DELIVERED IN BALTIMORE FREE OF CHARGE.

W. D. BRACKENRIDGE.



It is manifest that from GOOD SEEDS ONLY can Good Vegetables be obtained.

The character of LANDRETH'S SEEDS

has been substantiated beyond all question.

They are the STANDARD for Quality.

Over 1500 acres in Garden Seed Crops

under our own cultivation.

Ask your Storekeeper for them in original

sealed packages, or drop us a postal card for

prices and Catalogue.

Wholesale trade prices to dealers on application.

Founded 1734. DAVID LANDRETH & SONS, 21 and 23 S. Sixth St., Philadelphia.

HIGHEST HONORS AND AWARDS

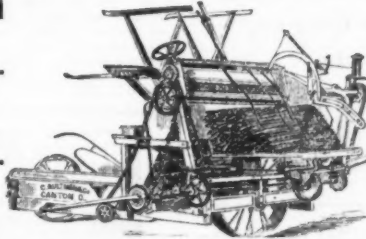
— TO THE —

BUCKEYE SELF-BINDER!

Buckeye Mower and
Reaper.

Sweepstakes and Mil-
ler's New Model Vi-
brating Thresher.

Separator and Clean-
er, Clover Hulling
Attachments.



CANTON, O.,

"MONITOR"
Farm Engine.

With or without "Traction and
Celebrated Link Motion."

Capacity for work, strength, du-
rability and superior finish,
paramount to all other
considerations.

**RANDALL HARROWS, "TIGER" and FAVORITE SELF-
DUMP and Hand Hay-Rakes,**

The Old Reliable Force Feed **"TRIUMPH" Grain Drill,**

Manufactured by J. W. STODDARD & CO., Dayton, Ohio.

C. AULTMAN & CO.,

Branch Office and Warehouse—No. 122 South Eutaw Street, Baltimore, Md.

HUGH W. MATTHEWS, - - - **Manager.**

GRIFFITH & TURNER,

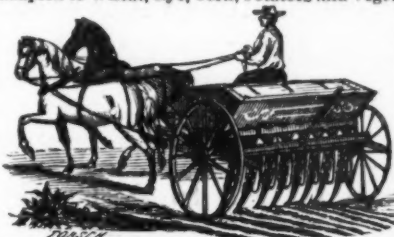
MANUFACTURERS OF AND DEALERS IN

*Agricultural Implements and Machinery, Garden and Field
Seeds, Fertilizers, &c., &c.*

Nos. 41 and 43 North Paca Street, Baltimore, Md.

The very flattering results from the use of our Fertilizers during the past season encourages us in of-
fering for the fall seeding these highly concentrated Fertilizers, feeling that our efforts to furnish a High-
Grade Phosphate has been appreciated

FERTILIZERS OF STANDARD BRANDS.—Griffith & Turner's Animal Bone Phosphate,
a high-grade Phosphate prepared from animal bone, has given great satisfaction; is popular wherever
known. Griffith & Turner's Ammoniated Bone Phosphate. Alkaline Plant-Food is especially
adapted to Wheat, Rye, Corn, Potatoes and Vegetables requiring Fertilizers rich in Potash. Griffith & Tur-
ner's Unsteamed Raw Bone Slinguffs and Baker's Dis-
solved Bone, Turner's Excelsior and Phosphate, Hol-
loway's Excelsior and Phosphate, Lister's Phosphate,
Whitelock's Vegetator, Peruvian and Orchilla Guano,
Plaster, Acid and Chemicals for Compounding Fertil-
izers.



Hagerstown Grain, Seed and Fertilizer Drill.

This well-known and popular Drill, with recent improve-
ments, has special claims to public favor. The **Farmer's
Friend Drill**, with Cone Gear for regulating quan-
tity, &c., and Double Force Feed Seeder, is worthy of
notice. The **Monarch Drill**, with Pulverizer and New
Force Feed Fertilizer Distributor, is what the farmer has

long been looking for. These Drills embrace the most perfect devices for sowing grain, seeds and fertilizers.
The **Empire Thresher and Separator**, in sizes suited either for farm purposes or threshermen's
outfit. Grain Fans, Cider Mills, Corn Shellers, Hay Presses, Cutters for Hay, Straw and Fodder.

The **Oliver Chilled Plow** is warranted to do good work, scour in any soil, run lighter than any plow
in use. 1,000,000 of these Plows now in the hands of Farmers fully attest their merits.

Patent Galvanized Steel Barbed Fencing. No other fencing so cheap, or put up so easily or
quickly. **Repairing of All Kinds at Shortest Notice.** Send for Descriptive Circulars.

GRIFFITH & TURNER, Nos. 41 and 43 North Paca Street, Baltimore, Md.

G. W. LEHMANN, Ph. D.
Chemist and Metallurgist
Balto. Copper Works.

W. MAGER,
Formerly Chemist of N. C.
Fertilizer Control Station.

LEHMANN & MAGER,
CHEMISTS & ASSAYERS,
57 SOUTH GAY STREET,
Baltimore, Md.

Analysis of all descriptions:—Manures, Soils, Chemical Fertilizers, Ores of Gold and Silver, (by fire process,) Copper, Lead, Manganese, etc. Clays, Coal, Limestone and other minerals. Water for steam, manufacturing, and household use. Mineral waters and various products of art. Terms moderate.

The Windsor Farm herd of
JERSEY CATTLE

Will at all times supply animals, of all ages and at reasonable rates.
Animals of the finest breeding in the Country.

Address, T. ALEX. SETH,
28 St. Paul Street, Baltimore, Md.

BERKSHIRES For Sale

At Reasonable Prices.

I breed only from the most choice stock of the country, in pedigree, form and markings. All stock recorded, and can be seen at any time. Also Bk. B., Red Breasted and Blue Game Chickens, or eggs of superior stock for sale. Stock shipped as represented. Correspondence solicited.

THOS. A. HAYS Churchville Md.

DR. R. P. LORD,
VETERINARY SURGEON.

Member of the Royal College of Veterinary Surgeons, London. Treats all diseases of Horses, Dogs and Cattle. Spacious Infirmary Stables and operating room, corner Pennsylvania Ave. and Hoffman Street Baltimore, Md.

A. G. MOTT.
AGRICULTURAL IMPLEMENT

And Seed Warehouse.
40 ENSOR STREET
NEAR BELAIR MARKET,
BALTIMORE, MD.

Sole Agent for the great BELLE CITY FEED CUTTER, "Boss of the World," for Fodder, Hay and Straw. Cuts 4 lengths, from 2 to 2 inches. Will cut one ton in 30 minutes. SEND FOR CIRCULAR.

\$10 Outfit furnished free, with full instructions for conducting the most profitable business that any one can engage in. The business is so easy to learn, and our instructions are so simple and plain, that any one can make great profits from the very start. No one can fail who is willing to work. Women are as successful as men. Boys and girls can earn large sums. Many have made at the business over one hundred dollars in a single week. Nothing like it ever known before. All who engage are surprised at the ease and rapidity with which they are able to make money. You can engage in this business during your spare time at great profit. You do not have to invest capital in it. We take all the risk. Those who need ready money, should write to us at once. All furnished free. Address Taux & Co., Augusta, Maine.

POOLE & HUNT, BALTIMORE

MANUFACTURERS OF

THE POOLE & HUNT LEFFEL TURBINE

WATER WHEELS,

MACHINE MOULDED
MILL GEARING.

SHAFTING, PULLEYS AND HANGERS,
STEAM ENGINES AND BOILERS,
MIXERS FOR FERTILIZERS AND CHEMICALS

FOR SALE

At the "Poplar Grove Stock Farm"—

TROTTING HORSES,
SHORT-HORN CATTLE,
COTSWOLD SHEEP,
BERKSHIRE PIGS.

Of the finest individual excellence and fashionably bred.
EDWARD B. EMORY, Centreville, Md.

OXFORDSHIRE DOWN BUCK for Sale.

For sale, one Choice Buck, bred by T. S. Cooper, sired by imported Buck out of imported Ewe.
Also a few Choice Buck Lambs, sired by above Buck out of Cotswold Ewes.

THOS. J. LEA, BRIGHTON P. O.,
Montgomery County, Md.

FOR SALE

At the "Maple Grove Stock Farm,"

SHORT-HORN CATTLE,
COTSWOLD SHEEP
AND BERKSHIRE PIGS.

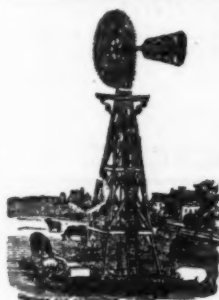
THOS. J. LEA,
BRIGHTON P. O. MD.

GEORGE O. STEVENS,
WINDOW SASHES, BLINDS & DOORS
49
LIGHT STREET,
BALTIMORE.

KEEP IN STOCK AND FURNISHED TO ORDER:

Window Sashes, Doors, Blinds, Mouldings, Brackets, Hand Railings, Balusters, Newel Posts, Bracket Shelves, Barge Boards, Door Caps, Door Frames, Paints, Oil, Putty, Glass, Lumber, Bricks, Lime, Sash Weights, Sash Cord, Porch Columns, Tree Boxes,

THE BEST WORK AT LOWEST PRICES.



D. E. MILLER.

JOHN D. MYERS.

D. E. MILLER & CO.

Contractors for Drilling and Equipping

ARTESIAN WELLS

Of any required depth. Boring old Wells without removing walls. Drilling new Wells from the surface and inserting Cement or Iron Pipes, excluding all foul or surface waters. Have all the Improved Steam Appliances for Drilling and Reaming in hard or soft rock, from 4 to 14 inches in diameter.

Agents for Star Wind Engines and Pumps, for Pumping Water by Wind.

BEST OF REFERENCES GIVEN.

Address 17 NORTH PACA STREET, BALTIMORE, Md.

S. HAMILTON CAUGHY

NOAH W. CAUGHY.

Noah Walker & Co.,
CLOTHING AND FURNISHING GOODS,

165 and 167 W. Baltimore Street,

Between Calvert and Light Streets, SOUTH SIDE,

Washington Building.

Baltimore, Md.

ORDER DEPARTMENT—Gentlemen's Clothing and Shirts, of any material and style, made to order, with prompt and careful attention and strict reference to the established reputation of the house for **TASTEFUL AND SUBSTANTIAL CLOTHING.** Prices Guaranteed to be lower than Merchant Tailoring Establishments generally. Their stock of Boys' Clothing, from three years old up, is unsurpassed. Samples of material, with directions by which any one can measure, and prices sent by mail when desired.

TO COTTON PLANTERS.

J. J. TURNER & CO.'S

Ammoniated
BONE



SUPER
Phosphate

Composed of the most concentrated materials, it is

RICHER IN AMMONIA & SOLUBLE PHOSPHATES

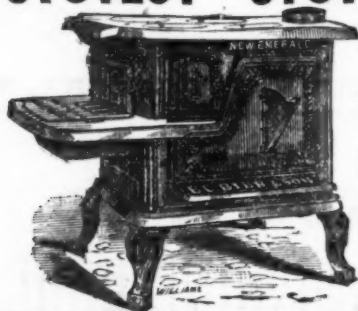
Than any other fertilizer sold, except OUR EXCELSIOR, and is made with the same care and supervision, uniform quality guaranteed. Fine and dry, in excellent order for drilling. We have also a very superior quality of

PURE DISSOLVED BONES,

And keep constantly on hand a large supply of high-grade PERUVIAN GUANO.

J. J. TURNER & CO., 42 Pratt St., Baltimore, Md.

STOVES! STOVES!! STOVES!!!



We desire to call the attention of dealers and others to the superior line of goods we are manufacturing at our foundry and offering at attractive prices. The

New Emerald Cook

embodies all the latest improvements, and is unsurpassed as a baker. Our celebrated

Fire-Place Heaters

still remain ahead of all competition. We also manufacture a large variety of Cook and Heating Stoves.

Furnaces and Ranges

adapted to the wants of all. **Farming Implements** repaired at short notice. **Machinery** and all kinds of castings made to order at low rates.

B. C. BIBB & SON,
Baltimore, Md.

Foundry, Port Deposit, Md.

FRANKLIN DAVIS.

EWD. H. BISSELL.

BALTIMORE NURSERIES.

FRANKLIN DAVIS & CO.

400 Acres in Nursery Stock. 100 Acres in Orchards. 100 Acres in Small Fruits.

We offer to our customers an immense stock of Apples, Peaches, Cherries, Apricots, Grapes, &c.—all the standard sorts. Also the new varieties of Fruits, Ornamental Trees, Shrubs, Roses, &c.. Wholesale and Retail. To dealers we can offer stock on favorable terms, and the best facilities for packing and shipping. Catalogues mailed on application.

FRANKLIN DAVIS & CO.

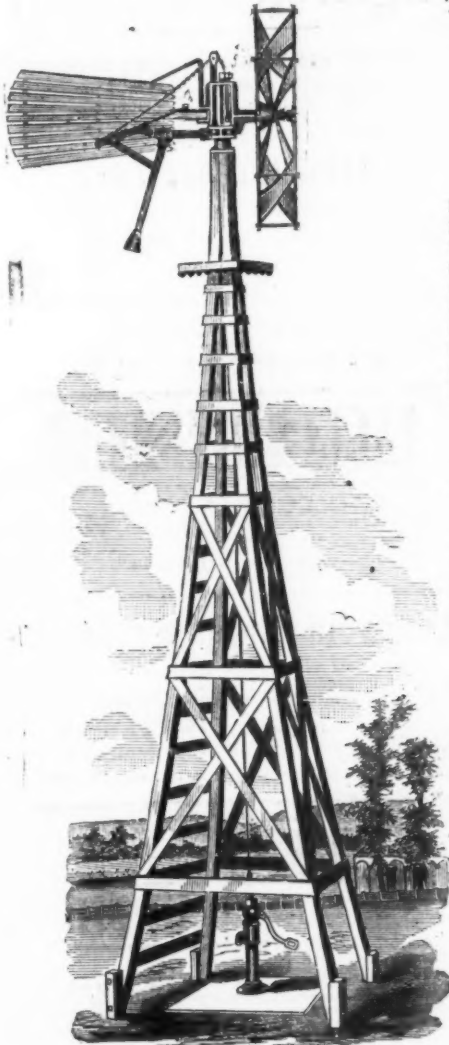
Office Cor. Baltimore and Paca Sts., (over People's Bank,)

BALTIMORE, MD.

J. C. DURBOROW & CO.

GENERAL AGENTS FOR

The Croft Improved Iron Wind Engine.



The Best now in use. Very Strong, Simple and Durable. Runs while other mills are standing still.

The Mill being made entirely of Iron, renders it superior to the trappy affairs made of wood, as it is not affected by the weather. The Buckets of our Wind Mill are so constructed as to get the full power of the wind without breaking its force on the inside edge of the bucket, as it travels at about the same rate of speed as the outer edge. This Mill is fully warranted, and any purchaser will be given thirty days' trial before settling for it.

Send for Descriptive Circular.

ROCK HALL, Kent Co., Md., Sept. 22, 1881.

Messrs. J. C. DUBURROW & Co.,
35 Light Street, Baltimore.

Dear Sirs:—Enclosed please find my check in payment for the "Croft Windmill" I bought of you. After thirty days' trial, must say if it continues to work as it has done I would not be without it for twice the cost if I could not get another.

Yours respectfully,

B. F. SAPPINGTON.

A FULL LINE OF FARM MACHINERY

CONSTANTLY ON HAND.

Springfield Pitts Thresher, Mansfield Engines, Superior Grain Drill, Thomas Horse Rake, South Bend Chilled Plows, &c.

Wood and Iron Pumps,
Wheelbarrows of all kinds.

Correspondence Solicited. Office and Warehouse, 35 Light St., Balto.

Card Collectors!

1st. Buy seven bars **Dobbins' Electric Soap** of your Grocer.

2d. Ask him to give you a bill of it.

3d. Mail us his bill and your full address.

4th. We will mail you **FREE** seven beautiful cards, in six colors and gold, representing Shakspeare's "Seven Ages of Man."

I. L. CRAGIN & Co.

116 South 4th Street,
Phila., Pa.

University of the State of New York.

AMERICAN VETERINARY COLLEGE,

141 West 54th St. New York City.

The regular course of lectures commences in October, each year. Circular and information can be had on application to
A. LIAUTARD, M. D. V. S.,
Dean of the Faculty.

RUG PATTERNS! Agents wanted. For circulars address with stamp, **E. S. Frost & Co., Biddeford, Maine.**

CHARLES E. HAND,

Breeder H. R. Jersey Cattle

The splendid young Alpeha Bull Mercurio. (4783.) will stand to serve a few registered Heifers, at \$10 each.—Animals of both sexes for sale at all times.

CHARLES E. HAND, Catonsville, Balto. Co., Md.

Agricultural Lime!

Farmers and Fruit Growers are respectfully informed that the Consolidated Gas Company is prepared to sell, at the low price of **Two Cents Per Bushel**, (delivered to vessel),

AGRICULTURAL LIME,

in quantities to suit. A valuable enricher of land, and a protector against insects.

Apply to Stations at Canton and Spring Gardens,
or to Office 19 South Street,

BALTIMORE, MD.

MAKE HENS LAY.

An English Veterinary Surgeon and Chemist, now traveling in this country, says that most of the Horse and Cattle Powders sold here are worthless trash. He says that Sheridan's Condition Powders are absolutely pure and immensely valuable. Nothing on earth will make hens lay like Sheridan's Condition Powders. Dose, one teaspoonful to one pint food. Sold everywhere, or sent by mail for eight letter stamps. **I. S. JOHNSON & CO., Boston, Mass., formerly Bangor Me.**

Cotswold Sheep for Sale!

Pedigreed Rams of all ages, among which are 3 Imported Rams of 2 to 23 lbs fleece, and some choice Ram-Lambs; also 25 to 30 Yearling Ewes of 12 to 18 lbs fleeces, sired by Golden Locks and Duke of Gloucester, to be bred next fall to my Imported Ram Royal Sherborne, with capacity for 25 lbs. fleece and 375 lbs. carcass.

ED. C. LEGG, Kent Island, Md.

ASTHMA

Quickly and
Permanently

Dr. Stinson's Asthma Remedy is unequalled as a positive Alternative and Cure for Asthma and Dyspepsia,

CURED

and all their attendant evils. It does not merely afford temporary relief, but is a permanent cure. Mrs. B. F. Lee, of Belmont, O., says of it: "I am surprised at the speedy effects of your remedy. It is the first medicine in six years that has loosened my cough and made expectoration easy. I now sleep all night without coughing." If your druggist does not keep it, send for treatise and testimonials to
H. F. K. FISK & CO.,
553 Broadway, New York.

SLINGLUFF & CO'S

CHESAPEAKE CHEMICAL WORKS.

OFFICE, { BALTIMORE. } WORKS,
157 W. Fayette Street. { Foot of Leadenhall St.

MANUFACTURERS AND MANIPULATORS OF

PHOSPHATES

*We are now offering to the Trade the following WELL-
KNOWN BRANDS OF GOODS, which we
guarantee fully up to the Standard:*

SLINGLUFF'S DISSOLVED GROUND BONE,

Containing 3 per cent. of Ammonia.

SLINGLUFF'S Dissolved South American Bone Ash,

Containing 40 to 44 per cent. Soluble Bone Phosphate.

SLINGLUFF'S Dissolved South Carolina Phosphate,

Containing 28 to 32 per cent. Soluble Bone Phosphate.

To meet the demand for a high-grade Fertilizer, we are offering **SLINGLUFF'S NATIVE SUPER-PHOSPHATE**—prepared entirely from Animal Bone—highly ammoniated.

Also, **SLINGLUFF'S No. 1 AMMONIATED SUPER-PHOSPHATE**. This we can confidently recommend as one of the best fertilizers sold in the market at a low price.

R. W. L. RASIN & CO.

MANUFACTURERS OF

| CHEMICAL FERTILIZERS |

— FOR —

COTTON, TOBACCO, CORN, OATS, WHEAT, &c.
WORKS, SOUTH BALTIMORE.

Where they have introduced the **MOST COMPLETE MACHINERY** for compounding Concentrated Fertilizers, that their great experience has enabled them to so successfully introduce to the Planters of the Middle and Southern States.

SOLUBLE SEA ISLAND GUANO

SO WELL-KNOWN AND OF UNDOUBTED EXCELLENCE.

EMPIRE GUANO

A HIGH-GRADE FERTILIZER OF KNOWN MERIT.

DISSOLVED BONE PHOSPHATE

PREPARED FROM GROUND ANIMAL BONES.

Acidulated South Carolina and Navassa Phosphates

AMMONIATED ALKALINE PHOSPHATE,

A complete manure, endorsed by the Patrons, who have used it with great satisfaction for the last five years, and is on sale by **Grange Agents** at Baltimore, Richmond, Norfolk, Petersburg and Alexandria.

RAW AND STEAMED BONES, POTASH SALTS,

And all Fertilizing Materials in Store and for Sale.

SPECIAL COMPOUNDS PREPARED ON ORDERS.

R. W. L. RASIN & CO.

S. W. Cor. SOUTH and WATER STS, BALTIMORE.

